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The War and Classical Remains in Italy

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THE Allied armies in the Mediterranean have now fought their way from the coast of Sicily to the banks of the Arno, and classical archaeologists may well have been anxious about the fate of the many remains—Greek, Etruscan and Roman—that have been exposed to the hazards of war. A description of the conditions of these, taken from the official reports of the sub-Commission for Monuments, Fine Arts and Archives (a branch of the Civil Affairs side of the Allied Forces) will probably be welcome to readers of ANTIQUITY.

None of the great classical monuments in Sicily suffered any damage whatsoever. At Siracusa refugees sheltering in the catacombs had tried to improve their quarters by cutting away some of the dividing walls of niches, etc., and the Ginnasio Romano was used by refugees and left by them in a filthy condition, but not materially affected.

The museums of the island did suffer damage, but in most cases the contents had been removed to safety before hostilities began in earnest. The Syracuse museum was hit by a small bomb and some pottery (the only thing left in the building) was smashed. The Museo Vagliasindi at Randazzo lost all but its best objects; the loss is not of very great moment. All the contents of the museum at Agrigento were saved. The National Museum at Palermo was badly damaged but most of the contents had been removed, and of the few which remained *in situ* and were broken several have already been repaired.

On the Italian mainland again the standing classical monuments of the south escaped scot free.

The gold objects from the Taranto museum had been sent to a bank at Parma; the contents of the museum at Reggio di Calabria had been safely stored. The ruins of the Temple of Hera at Crotone, the walls of Terranova di Sibari, the Greek tombs at Pisticci, the temple at Metaponto, the Greek sites at Tiriolo and Vibo Valentia, the ruins of Grumentum at Viggiano, and the Roman column at Brindisi are all intact. At Beneventum the Italian authorities had put an elaborate sandbag protection round the arch of Trajan, and, though a bomb burst immediately in front of it, it escaped with a mere scratch. The amphitheatre there was unharmed. At Paestum, in spite of the fact that the battle of the Salerno bridgehead raged all round them, the temples escaped all damage. Here indeed archaeological interests were actually served by the war. While digging a gun-emplacement close to the site the troops came upon evidence of a prehistoric cemetery. Work was stopped at once, the area wired in and put out of bounds,

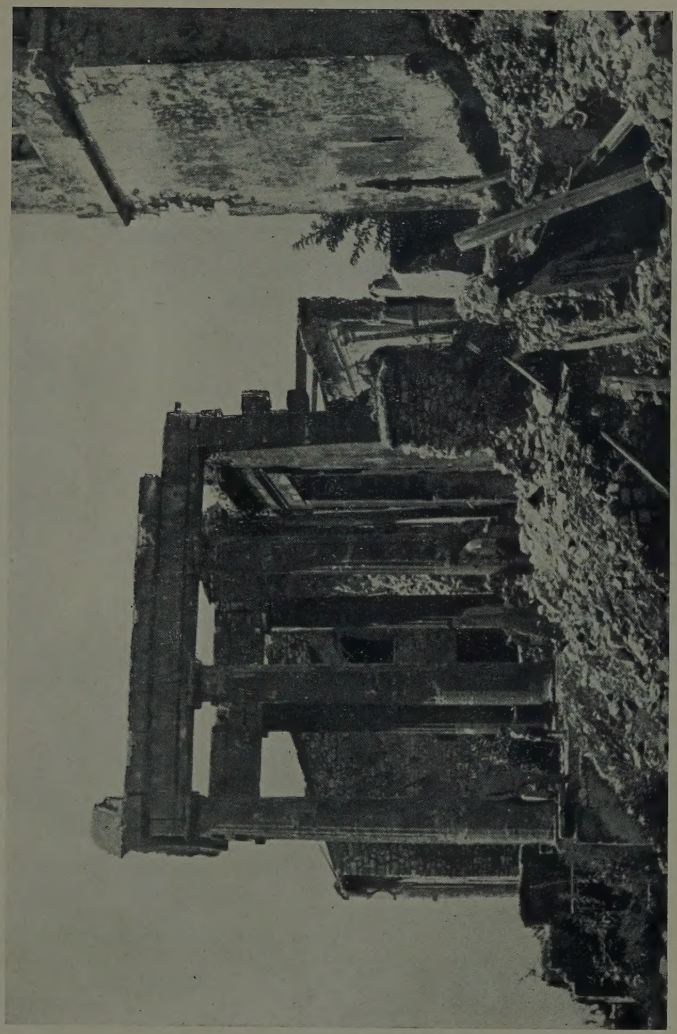
information was laid in the proper quarters, and regular excavations have subsequently been undertaken by the archaeologists of the Naples Museum.

Pompeii was bombed severely and damage was done, especially in the area of the Nuovi Scavi. In view of the conflicting accounts that have been published the detailed report of the Monuments and Fine Arts sub-Commission can be quoted in full.

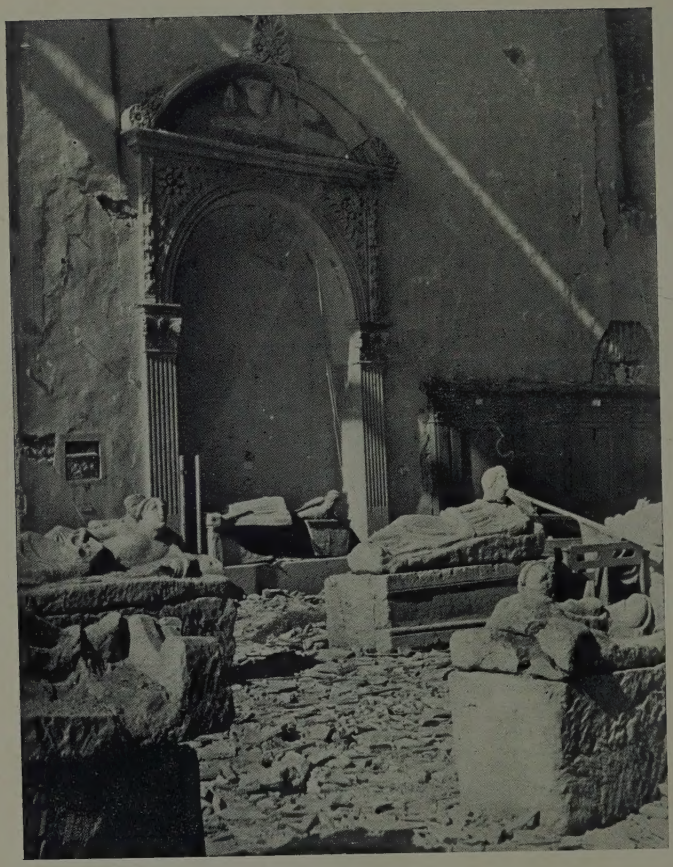
Regio I.	Ins. VI.	Casa del Criptoportico : two roofs and four walls damaged ; fresco of Mercury and Serpent unharmed.
	Ins. VII.	Casa Poquino Proculo : roof and upper parts of walls damaged.
Regio II.	Ins. V.	Palestra, little damaged. Casa di Loreto Tiburtino : roof and rooms damaged ; ceiling of Oecus damaged.
Regio III.	Ins. II.	Casa di Trebio Valente : front wall and three frescoes of 2nd style destroyed.
	Ins. III.	Shops and taverns completely destroyed. Scuola Juventutis : west wall damaged, one fresco of war trophies and frescoes on west wall gone.
	Ins. IV.	Casa di Iphigenia e Moralista : peristyle and four rooms with frescoes of 4th style destroyed.
Regio V.	Ins. V.	North of Villa delle Colonne e Musaico : four rooms damaged ; Tomb No. 34 destroyed ; Villa de Diomede : southwest angle of garden damaged.
Regio VI.	Ins. II.	Casa di Sallustio : tablinium, portichetta and several rooms destroyed, involving frescoes, notably ' Actaeon and Diana '.
	Ins. VI.	Casa dei Vettii : damage very slight and all important frescoes intact.
	Ins. XII.	Casa del Fauno : atrium and five (NE. and NW.) rooms destroyed with frescoes of 1st and 4th styles. This is the most unfortunate individual loss.
Regio VII.		Temple of Apollo and Casa di Trittolemo : dividing wall damaged but damage to temple not serious. Atrium and six rooms of the Casa destroyed ; also a shed containing the recently found archaic Greek terracotta revetments, these were broken but are in process of restoration.
	Ins. VIII.	Casa del Marinaio : destroyed ; Roman pottery collection destroyed. Museum : south part completely destroyed.
Regio VIII.		Foro Triangolario : street and entrance hit but damage insignificant. Teatro grande : three bombs hit the *media cava*, *cripta* and *summa cava*. Tempio Dorico : part of (rebuilt) podium destroyed. Palestra Sannitica : portico and entrance partly destroyed.
Regio IX.	Ins. XII.	Edifizio del Cenacolo : completely destroyed.
Insula occidentale.		Casa del grande atrio : four walls and one room with frescoes destroyed.

The sub-Director of the Monuments and Fine Arts sub-Commission reports that the damage is far less than early accounts would suggest, and that with the careful work of clearance and consolidation now in progress under the direction of Signorina Elia, it will leave little permanent trace on the excavation other than the disappearance of such ornamental detail as has been listed as destroyed.

PLATE I



CORI : CHURCH OF SAN PIETRO
Most of the Medieval building has collapsed completely, leaving the Temple of Hercules, incorporated in it, standing free and almost unharmed (*see* p. 172)



VITERBO

The Museo Cívico after the bombardment; the main gallery with Etruscan Sarcophagi
(*see* p. 172)

Herculaneum was undamaged, as were the ruins at Pozzuoli, Cumae, and the excavated site of Minturnae. The amphitheatre and mithraeum at Capua Vecchia suffered no hurt; the Museo Campano at Capua on the other hand was ruined; some of the collections have been salved. The Museo Nazionale at Naples was not hit. All the marbles are *in situ*, and safe; they were for the most part protected by sandbagging and scaffolding. The frescoes and the smaller objects, including the whole of the Egyptian collection, are safely stored in the basement where they are regularly inspected by Professor Maiuri. The bronzes and some other material from Herculaneum and Pompeii were packed and, together with pictures, etc., from the National Gallery at Naples and from other collections, were stored by the Italian authorities at Monte Cassino. Thence they were removed by the Germans (the Hermann Goering Division) and, according to the official German announcements, delivered with much ceremony to the Vatican authorities. Investigation now shows that of the 187 cases concerned 15 are lacking, and a number which were handed over had previously been opened and the best of their contents removed. Of the 87 Naples Museum cases there are missing case no. 1 containing gold objects, case no. 55 with various small museum objects, and cases nos. 7, 16, 19 and 28 containing large bronze statues, namely the Two Deer from Herculaneum, the Apollo from Pompeii, the Mercury resting, and the female dancer.

The Roman remains at Venafro are unhurt, but the coin collection and some small objects were stolen from the Museum. Some damage was done to the Roman fragments (the Ara Frentana) at Larino. At Isernia one of the Roman bridges, the better preserved, is intact, as is the megalithic wall. The Germans stole the whole of the coin collection from the Museum at Isernia (which was badly damaged) and from Baranello, from the museum at Arpino and from the Abbadia di Valvisciolo; the Museo Sannitico at Compobasso retains all its collections intact except for the coins. The Roman amphitheatre at Lucera suffered minor damage through the plundering of material to build field ovens, and the cyclopean walls at Arpino suffered through German blasting to make gun emplacements. The megalithic Samnite ruins at Pietrabbondante are unharmed. The following have suffered no damage:—the Roman walls and amphitheatre at Telesia; Roman bridge at Faicchio; Roman walls, villas and amphitheatre at Sezze; the Roman remains and cyclopean walls at Serrone. There was slight damage to the top stones of Marc Antony's arch at Aquino, but none to the temple ruins and amphitheatre; at Cori the bridge attributed to Sulla, the Tempio di Castore e Polluce and the cyclopean walls; the Roman gateway, the amphitheatre and the Tempio di Giove as well as the marbles in the museum at Terracina, but the coin collection and some small objects had been looted by the Germans. At Ceccano the Trajan inscription has been broken but is recoverable.

At Palestrina the Temple of Fortune was damaged, the capital of one column being broken and part of the cornice dislodged. One shell-hit within the Area Sacra caused damage to the Sullan retaining-wall of *opus incertum*. About 30 yards of the lower terrace wall with pre-Sullan ashlar facing was destroyed. The Nile mosaic in the Barberini palace had been removed to Rome. The Roman remains at Formia are in good order, but the Museum (from which the best objects had been taken to Naples) was destroyed. Ostia was completely unharmed. At Nemi, on the other hand, the Germans deliberately burnt the museum, destroying the hulls of the two imperial barges. In Rome, bombs made two breaches of about 50 feet and 15 feet respectively in the Aurelian wall. There was no other damage.

At Tivoli the back part of the temple of Venus was hit; part of a lintel and cornice above a window, with part of the adjoining *opus reticulatum* were thrown down, and some

other masonry was in danger of collapse. The columns and front of the temple are intact. The Temple of Tiberius is unhurt, as are the fine mosaics in the Villa Gianozzi. There had been a few hits in the neighbourhood of Hadrian's villa and the approach to it had been mined by the Germans, but no real damage seems to have been done. In the temple of Vesta damage was limited to a restored part of the cella wall and a piece of the architrave above the door. The Temple of the Plautii is intact. The Roman remains at Spoleto and at Terracina are intact, as is the theatre at Gubbio. At Cori the Temple of Hercules escaped with slight damage the destruction which overwhelmed the church of San Pietro of which it formed part (PLATE I).

At Tarquinia most of the Etruscan tombs had been entered, the iron gates having been broken down; nine of the more important had further been sealed with masonry which in four cases had been tunnelled; this is excusable, as there was no saying to what purpose the tombs might have been put. The Germans had used several tombs as billets, one for a telephone exchange, and one tumulus had been excavated for a defensive emplacement. In two cases (the Pulcella and the Morente tombs) some damage had been done by small-arms fire. In the Pulcella tomb efforts had been made to prise up the (false) tomb slab. Serious artistic damage was limited to the erasure of one fine head. The museum had been seriously damaged, but the best small objects had been removed to Rome and the larger objects stored in the cellars, where they were safe. A small amount of Etruscan pottery was broken, but is repairable. The Etruscan tombs at Bassano di Sutri are intact. Those at Sutri were used by the Germans as munition-dumps; they burnt the ammunition before withdrawing and left the tombs in bad condition. They had also used the amphitheatre as a munition-dump and motor pool, but no serious damage resulted. The Etruscan tombs at Soriano nel Cimeño were used by the Germans as billets but were not much damaged. The museum at Civitavecchia was badly damaged and many of the objects are buried; the best had been removed to safety before fighting began. The museum at Volterra was undamaged; that at Sutri suffered from wanton damage by German troops.

At Saturnia the Etruscan walls suffered some damage from bombing and artillery fire. The pre-Roman megalithic walls and gates of the acropolis at Alatri had a few shell hits but did not suffer any serious hurt. The similar walls of the acropolis at Ferentino were unharmed, as were those at Norma and Sezze and Veroli; at Arragni there was slight damage. At Arpino only one section of the cyclopean wall was damaged; the Fufidior sarcophagus is intact and the contents of the museum were saved except for the coin collection, which the Germans looted. The megalithic walls at Arce were badly breached by bombing and shell fire. At Volterra the Etruscan walls are unharmed.

The tombs at Palestrina are undamaged, though occupied by refugees; so too are those at Carbognano. The greatest loss was due to the shelling of the Museo Etrusco at Chiusi. None of the contents had been evacuated and cases containing the finest Greek and Etruscan clay and metal vases were smashed. Some damage was done to the Etruscan vases and statues in the museum at Viterbo (PLATE II).

Thanks partly to good luck, partly to the wise precautions taken by the Italian authorities, but in no small measure to the good will and active interest of the Allied fighting services, the classical remains of Sicily, Southern and Central Italy have suffered astonishingly little from the effects of the war. The list given above is of course very far from being exhaustive, but it does deal with nearly every site of importance to the classical scholar which lay within the combatant area and was more or less exposed to danger. It can fairly be assumed that the other sites have come to no harm.

Prehistoric Copper Hoards in the Ganges Basin

by Stuart Piggott

HALF a century before the recognition of the prehistoric Harappa culture in Western India with its varied metal equipment, at least one very remarkable find of primitive copper implements had brought India to the notice of European prehistorians. The discovery of the Gungeria hoard of over 400 copper axes and tools of similar types aroused some considerable interest in the 1870's, and the allocation of the bulk of these objects to the British Museum literally brought the matter home to British students. Indian prehistory was in those days in a state of bewildered vagueness typified by the title chosen for a paper by that engaging eccentric, Colonel Meadows Taylor, in 1873 when he wrote on the ' Celtic, Druidical or Scythian Monuments in the Dekhan ', and it was left to Vincent Smith to publish, in 1905–07, (1) a comprehensive statement on the Gungeria and allied finds which gives an admirable account of the whole subject in the light of the archaeology of the day. Since then fresh finds have been made, and the identification of the Harappa culture has given us some concrete facts with regard to early metallurgy in India which can be related culturally and chronologically to the ancient civilizations of Iran and Sumer. It seems worth while therefore to review the whole question of the hoards of copper tools from the Ganges Basin and the adjacent highlands to the southeast—hoards from some twenty sites and totalling between 500 and 600 implements.

As in all Indian archaeological problems, the geography of the area concerned is on a vast scale. The two great riverine plains of northern India, formed respectively by the Indus and the Ganges, are a commonplace of junior school geography, but it is not always realized that if Delhi, approximately at the apex of the obtuse triangle formed by these two plains, is considered as London, a journey to the mouth of the Indus would be equivalent to one to Portugal, while the mouth of the Ganges would correspondingly lie to the east of Danzig. On this enormous background we must set out prehistoric cultures ; the known sites of the Harappa civilization stretch from the Himalayan foothills to the Gulf of Cambay, a distance of 700 miles, and the hoards of copper implements discussed in this paper, all showing characteristics uniting them as the product of one culture, have been found over an area at least 800 by 500 miles, mainly lying within the Ganges Basin.

The distribution of these finds is shown in FIG. 1, on which the known sites of the Harappa culture are also plotted. The hoards vary in number from over 400 copper objects at Gungeria down to two or three : isolated finds of implements are comparatively rare and may be suspected as residual examples from hoards otherwise lost. Details of known finds are given in an appendix, and while it is probable that more exist unpublished or recorded in obscure publications, the distribution pattern seems consistent and sound. The copper (or occasionally bronze) types represented in these finds may be divided into two main groups—axes (including specialized forms of ' barcelts '), and harpoons ; there is also a notable hoard of swords, and silver ornaments were associated with the Gungeria hoard. No find has been made under conditions of scientific or even moderately intelligent supervision, water-buffaloes and peasants

[1] *Indian Antiquary* 1905, XXXIV, 229–44, with supplement in ibid, XXXVI, 1907, 53–55. Full references to all finds up to that date.

having shared the honours of kicking the implements from the ground; but it was recorded that the Gungeria hoard was packed carefully as if originally in a wooden chest. The finds are at present scattered throughout the museums of India and Europe, while some have become godlings in Hindu temples.

These preliminaries make it clear that the only light that can be thrown on these hoards is from a study of the typology of their contents, particularly by comparison with the well-documented finds of metal tools in the Harappa culture. We may conveniently begin with the axes and analogous implements which form the great majority of objects in the hoards. The essential and basic feature of these is that there are no socketed types, all the objects being variations on the most primitive form of metal axe—the ' flat axe ' in usual nomenclature, the ' blade axe ' of Marshall and Mackay. Earlier commentators such as Vincent Smith naturally regarded this simple axe-form as in itself evidence of great antiquity and of a very primitive culture, but the Harappa evidence has shown that a highly evolved urban and literate culture equalling and in some respects excelling the contemporary civilizations of the ancient East can yet retain the most curiously primitive forms of metal tools. Indeed, no more convincing exemplification of the isolation of the Harappa culture, and the tenuity of its contacts with Sumer in the middle of the second millennium B.C., can be given than the complete absence of any trace of Sumerian influence on its metal equipment. The revolutionary discovery of the use of the socket in metal tools and weapons profoundly affected the evolution of types over an enormous region beyond the homeland of the invention, yet India only received the idea of socketed axe and adze types (as e.g. in the mattock from Mohenjo-daro and the axes from the Shukar levels at Chanhu-daro and from Shahi-tump) at second hand, sporadically, and after the collapse of the Harappa civilization when the barbarians were pressing eastwards.

The prototype of the extremely simple axe-type characteristic of Harappa goes back to the earliest days of metallurgy in Iran, occurring as it does in Sialk III and Giyan V, while not much later, in Susa I, we have axes which, with their splayed cutting edge, nearly parallel sides, and wide square-topped butt, accurately represent those in use in Western India probably nearly 2000 years later.

The great majority of the implements appear to be of pure copper, and a few have been analysed and confirm this impression. Four analyses confirmed an outward appearance of bronze, with the tin content ranging from 13.3 to 3.8 per cent.—a wide range, but well within the Harappa variations of tin percentages. The possible natural sources for the copper from which these implements were made are limited. Excluding the deposits in the Outer Himalayas, the two main areas of copper-ore deposits in India are westwards in Rajputana (Ajmer, Alwar and Udaipur regions) and eastwards in the Chota Nagpur and Singhbhum areas. In both areas are abundant traces of ancient (though undated) workings, with slag-heaps and other mining debris, and as will be seen from the map (FIG. 1) the hoards under discussion fall between these two regions. The extensive Singhbhum deposits seem the most likely source for the concentrations of finds around Palamau and Ranchi, and probably for Gungeria: the implements in the Jumna–Ganges plain may also have been made from metal from this source or from the Rajputana ores which are presumed to have supplied the metal-smiths of the Harappa culture. Spectrographic analysis of the implements and of the ores should give a more precise indication in conjunction with the analyses already published of the Harappa copper and bronze objects.

The axes and analogous tools fall into five main types, and it must be stated at the outset that the typological variations do not appear to have much significance, most of

the forms appearing mixed with others in almost every find. The simplest form, A, is a rather stumpy axe with rounded butt and nearly parallel or very slightly tapering sides (FIG. 2, no. 1); it certainly does occur associated with typologically early harpoons at e.g. Mainpuri and Bithur, but it also occurs at Gungeria associated with practically every other axe-form. Parallels to so simple a type are not likely to be of great significance. Type B has tapering sides which narrow to a small butt at e.g. Bithur (FIG. 2, no. 2), and a sub-form has an expanded cutting edge and incurved sides well represented at Gungeria (FIG. 2, nos. 3 and 4). A partial parallel can be found in the Harappa culture (2) and at Nal in Baluchistan (3), but at the latter site the axes have tapering sides which tend to slight convexity. Type C from e.g. Bithur and Rajpur (FIG. 2, nos. 5, 6, 7 and 8) is parallel-sided with square butt, approximating closely to Harappa forms, while D, exemplified mainly from the more southeasterly sites (FIG. 2, no. 9) is a shouldered

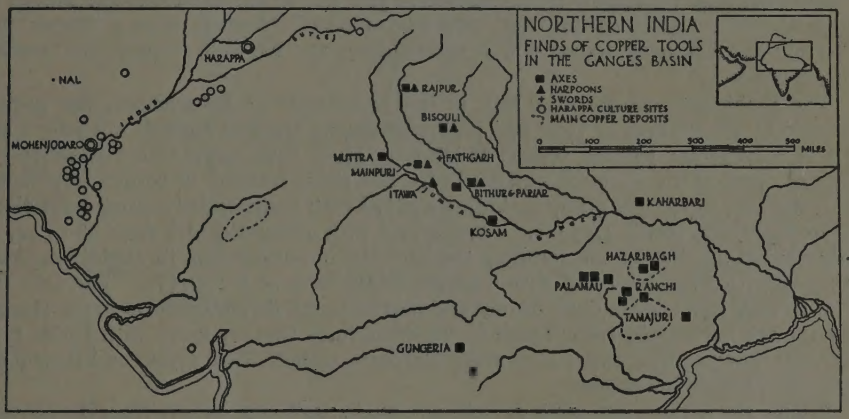


FIG. 1

form without metal parallels at Harappa, though it is a form which could have developed from our type C axes (e.g. FIG. 2, no. 8) and has been compared by R. A. Smith to shouldered stone axes from Burma. Finally type E, the bar-celt, is a peculiar form discussed separately below. Exceptional forms represented by isolated specimens included an axe with lateral lugs in the 'trunnion celt' manner from Kurram near Ranchi, paralleled by an almost equally isolated and remote specimen from Turang Tepe in northern Iran (4).

In general these axes are of forms which could all probably be derived from those of the Harappa culture, but their forms are too simple to admit of more precise correlation. But the bar-celts present a rather more hopeful line of enquiry. These elongated axe or chisel forms (FIG. 2, nos. 10 and 11), to which the name bar-celt was given by R. A. Smith in describing the British Museum's share of the Gungeria hoard (5), are more characteristic and specialized objects than the simple axe-types with which we

[2] Mackay, *Chanhu-Daro Excavations*, pl. LXX, no. 30.

[3] Hargreaves, *Excavations in Baluchistan* 1925 (A.S.I. Memoirs no. 35), pl. XIV.

[4] *Survey of Persian Art*, 1938, I, 166.

[5] British Museum *Bronze Age Guide*, 182–3.

have been dealing. Typically the bar-celt consists of a nearly or completely parallel-sided bar which may be up to two feet long, expanding at one end into a blade which is more or less expanded and lunate. The edge appears to be normally bifacial and not a true chisel edge. Such bar-celts have been found in the hoards at Gungeria (where they were abundant), at Rajpur and at Harni (Palamau).

Although precise parallels to these tools do not occur in the Harappa culture, nevertheless we can I think see predisposing origins in the axe and chisel types from more than one site, notably at Chanhu-daro. Chisels with the handle in one piece as a solid straight bar are known from the three main sites of the culture, but at Chanhu-daro we can see the appearance of an extremely narrow elongated axe up to 13 inches long, with almost parallel sides and having a ratio of width to length of about 1 : 11 as against an average of about 1 : 3 for the normal run of Harappa axes (6). The existence of such forms might plausibly be considered to give rise to our bar-celts, and indeed in a context almost certainly dating from very late or post-Harappan times a copper chisel or narrow axe has been found which foreshadows the bar-celts though not reaching their great size.

The prehistoric cemetery at Nal, in the Kalat state of Baluchistan, was partially excavated by Hargreaves in 1925 and produced among the grave-goods not only a large series of polychrome painted vessels which have given their name to a distinctive style among the prehistoric wares of western India, but also a number of copper implements, mainly flat axes but in one group including a chisel with unexpanded cutting-edge similar to some Harappan forms 4.85 ins. in length and with a length-width ratio of 1 : 24, and another chisel-like implement recalling the bar-celts in outline with its slightly expanded cutting-edge, 9.2 ins. long and with a length-width ratio of 1 : 30 (7). The axes from Nal, with their tendency to curved sides and narrow butts, do not conform to the Harappa series though flat-tanged spear-heads in the same finds vaguely agree with Indus types. In general however the copper tools from Nal form an individual group and their dating is a matter of some importance.

Briefly, the dating evidence is as follows. Stylistically the pottery from the cemetery is an evolution of that best represented at Nundara in south Baluchistan, and this Nundara ware is to be equated with that of Kulli in the same region on the grounds of an identical treatment, with horizontally banded haunches and shoulders, of animals on Nundara ware and painted pottery figurines from Kulli (8). I have shown elsewhere (9) that there is reason to date Kulli ware as contemporary with Early Dynastic Sumer at least as *terminus a quo*, and Nundara ware shows the pipal-leaf motif of Harappa derivation which should imply a date nearer Akkadian times, while further Harappa motifs appear at Nal. The cemetery was dug into a deserted settlement of Red Ware folk with some Kulli affinities ; a copper stamp-seal which may come from the village or less probably from the cemetery is paralleled in the Shahi-tump cemetery where it is associated with others datable to post-Harappa times (10). In general, while Nal probably overlaps with the later phases of the Harappa culture it seems likely in the main to be

[6] Mackay, op. cit. pl. LXVIII, no. 11, cf. also the elongated axes with length-width ratios of 1 : 8 and 1 : 6.5 on pl. LXXI, 9 and 10. The Harappa chisels have a ratio somewhere around 1 : 20.

[7] Hargreaves, op. cit. pl. XIVa, nos. 52 and 44.

[8] Cf. for instance Stein, *An Archaeological Tour in Gedrosia* (A.S.I. Memoirs no. 43), pl. XXV, Nun. 7 and Nun. IV, 12, with pl. XIV, Sh. T. ii. 17 or pl. XXXI, Mehi. II, 3, 1a.

[9] ANTIQUITY 1943, XVII, 169–82.

[10] Hargreaves, op. cit. pl. XVd (Nal) ; Stein, op. cit. pl. XIV, Sh.T. vi. 29. (Shahi Tump).

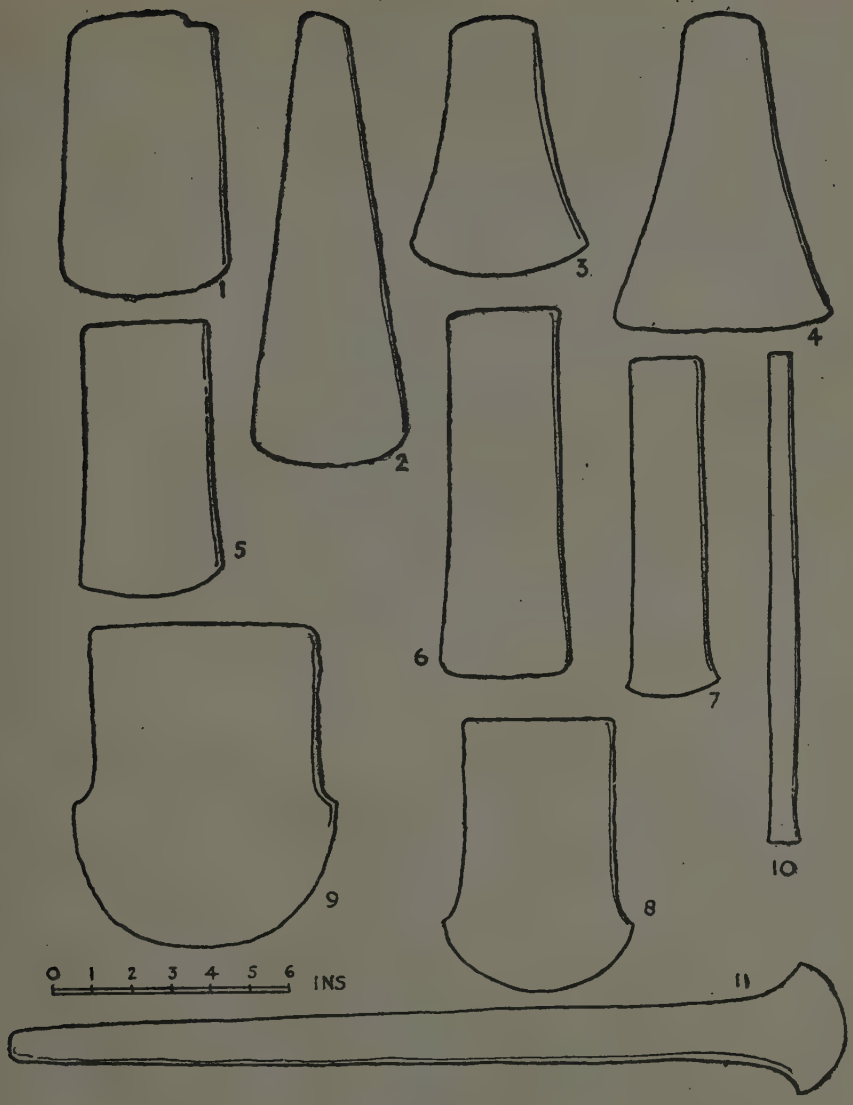


Fig. 2. COPPER AXES AND BAR-CELTS FROM THE GANGES BASIN AND GUNGERIA

subsequent, a position reinforced by the sherd of Nal ware from the later (Jhukar period) occupation of the Lohumjo-daro site in Sind (11).

We have then some evidence of implements of the bar-celt type being made at the close of the Harappa period or later, but it must also be remembered that Nal is immensely remote from the nearest bar-celt find, at Rajpur on the Ganges. (It may be noticed in passing however that this particular implement with its practically unexpanded cutting edge comes nearest to the Nal type (FIG. 2, no. 10). Until intermediate links are established the Nal finds cannot be more than suggestive pointers, and we are not at present in a position to say more than that the axes and analogous tools from the hoards could all be derived from types known in Harappan metallurgy. More precise connexions cannot be established.

The harpoons constitute a most interesting type with, it may be said at the outset, no parallels in the Harappa culture, nor so far as I am aware elsewhere in the metal types of the ancient East. More than a dozen examples are known, and practically the whole of these fall into a clear typological sequence as shown in FIG. 3. The most primitive form, represented by those from Bithur (nos. 1 and 2) consists of a rough blade with bilateral barbs, slight medial thickening, a simple tang and one or more holes below the lowest pair of barbs. This type, represented again from Mainpuri (no. 3), is seen in rather more sophisticated form in an unlocated Indian specimen now at Dublin (no. 4), in which the blade is becoming a separate element behind which are set the barbs. Finally, as at Rajpur (no. 5) we have a very accomplished piece of metal-working with leaf-shaped blade and characteristic curved barbs, and twice the size of the other examples. Throughout all the types the hole at the head of the tang persists, and functionally is represented on at least one large plain-bladed harpoon by a lateral projection.

It did not escape Vincent Smith's notice that the typologically early harpoons were not in themselves forms natural to metal, but were copies of bone or antler shapes, and with the finds in the Dordogne coming naturally to his mind he quoted Magdalenian parallels. Nor did he fail to point out that these weapons were true harpoons, detachable from their haft but secured to a cord tied through the hole or onto the projection at the base of the blade. To these sound observations we may add a third—the distribution map makes it clear that these harpoons are a function of a riverine culture confined to the Ganges–Jumna regions, for they are restricted to this area, whereas the axes have a far wider distribution into the uplands. In these primitive copper harpoons we see in fact the reflection of a group of early food-gathering tribes, with a specialized economy presumably centred on fish-spearing, acquiring a knowledge of metal-working from some centre of higher culture and transforming their characteristic hunting weapons accordingly.

The assumed prototypes of these harpoons raise most intriguing questions for Indian prehistory. To-day we need not look quite so far in time and space as to the Upper Palaeolithic of western France for bone-barbed harpoons or fish-spears comparable to the Indian metal copies, but still far enough : we know that the Mesolithic food-gathering cultures so well documented in northern Europe extended eastwards into the Asiatic steppes and survived far longer here than did their Scandinavian counterparts ; but even then the chronological and geographical separation of these cultures from the Ganges in the second millennium B.C. is enormous. The earliest settlements of Iraq and Iran show by the fifth millennium an already well-established food-producing village culture, and with the persistence there of some lithic industry we can as well

[11] Majumdar, *Explorations in Sind* (A.S.I. Memoirs, 48), 57. I have examined this sherd, which is certainly Nal Ware.

equate the later stone-blades which may possibly exist to the exclusion of metal at certain Baluchistan sites (where this may after all merely indicate poverty rather than high antiquity) and certainly persisted into the Harappa culture. While there seems as yet no evidence of final palaeolithic cultures in Iraq and Iran from which bone-barbed points might be derived (12), the early Natufian unilaterally barbed points in Palestine (13) imply possibilities of such Mesolithic types in other areas of the ancient east, though in India itself undated surface finds of microliths are the only indication of a mesolithic culture which might intervene in some regions of the country between the Middle Palaeolithic and the first metal-using cultures coming in from the west. But these copper harpoons do imply that there existed alongside the urban civilization of Harappa, and

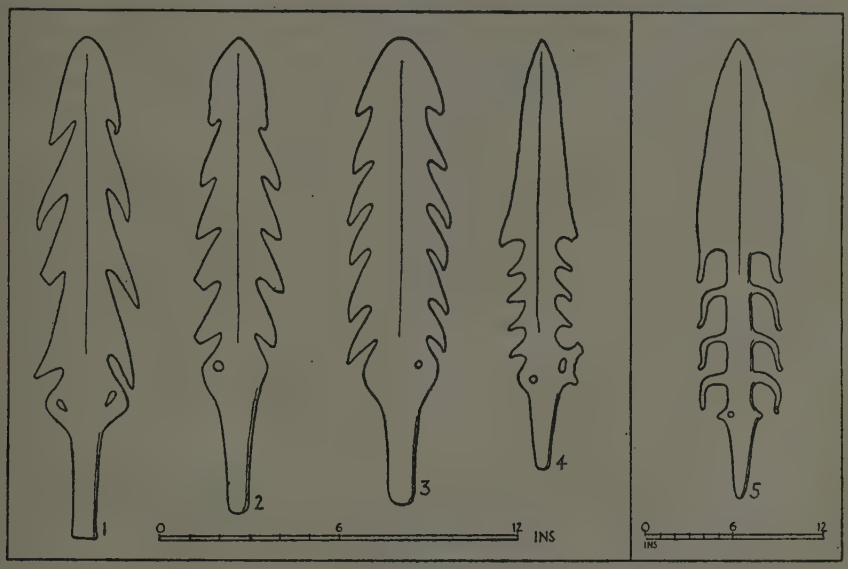


FIG. 3. COPPER HARPOONS FROM THE UPPER GANGES
1, 2: Bithur; 3: Mainpuri; 4: no loc.; 5: Rajpur

the less highly organized but nevertheless well characterized food-producing communities of the villages of Sind and the Punjab, primitive tribes of hunters and fishers whose equipment included types which find their best analogues in the final mesolithic cultures of the west and northwest. For the present, direct archaeological links are absent, but some hint as to the nature of the yet undiscovered ultimate pre-metallic cultures of northern India may be contained in these interesting skeuomorphs.

The survival of a primitive type of hunting weapon by reason of its satisfactory form is of course frequent in higher cultures; the chert 'petit tranchet derivative' arrow-tips from one of the 'Royal Tombs' at Ur (14) are a case in point, and on the reliefs in

[12] The remarkable stone statuette from Amk in North Syria might possibly be regarded as showing an East Gravettian art style persisting into Sumerian times in that region, but it stands alone and cannot be used as definite evidence. (*Mélanges Syriens*, 1939, I, 135–7).

[13] Curwen, ANTIQUITY, 1941, XV, 326 with refs. [14] Clark, ANTIQUITY, 1935, IX, 210.

the VI Dynasty tombs at Sakkarah hippopotami are shown being speared with harpoons with a single-barbed detachable head secured to a rope in precisely the manner we have assumed for our Ganges examples (15). Curwen has drawn attention to analogous iron-barbed harpoon-heads until recently in use for pig-sticking among the Andaman Islanders (16).

There is within our area one hoard which stands apart from those already discussed and is of outstanding interest. At Fathgarh was found a group of thirteen large swords (FIG. 4) apparently of copper (though not analysed), with slight midribs and all but one with characteristic ' antennae ' hilts ; a type paralleled in India by another hoard of four such swords from Kullur in Hyderabad State, Deccan (17). The presence of these sophisticated and martial weapons strikes an immediate discordant note among the axes and harpoons of a primitive peasantry with which we have been dealing, and their intrusive nature is made clear when we seek in vain for prototypes for any such weapons of war among the Harappa metal inventory. For comparison with the characteristic hilt we must indeed turn to weapons from such regions as the Caucasus and South

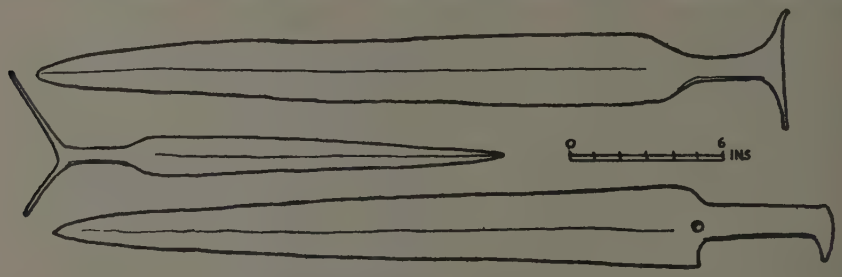


FIG. 4. SWORDS FROM THE FATHGARH HOARD

Russia, and we may opportunely refer at this point to the bronze sword from the Punjab now in the National Museum of Antiquities of Edinburgh, with a peculiar hilt accurately paralleled in the ' Luristan ' swords of Iran (18). Some link between the Fathgarh swords and the other hoards is afforded by the presence at Fathgarh of an ' anthropomorphic ' figure of sheet-metal, which appears to be paralleled by another found recently with an axe and a harpoon at Bisouli, but the weapons raise problems of their own. If they are, as seems likely, intrusive to the area, we can hardly avoid the temptation of relating them to some aspect of the Aryan immigration into India. In the search for material evidence of ' Vedic ' culture these swords, with their implication of warrior invaders, seem perhaps to be the likeliest claimants up to date.

Other objects associated with the axe-hoards include plain copper rings from two or three sites, and a number of silver ornaments from Gungeria, made of thin sheet metal cut into discs or stylized bulls' heads. There seem no relevant parallels (19).

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[15] In the Meri Ruka tomb. Noted in February 1942.

[16] Curwen, loc. cit. 327.

[17] *Annual Report, Arch. Dept. H.E.H. the Nizam's Dominions*, 1937–40, pl. V (g).

[18] Vincent Smith, 1905, p. 243. For Luristan types cf. *Survey of Persian Art*, IV, pl. 55. I am indebted to Mrs K. R. Maxwell-Hyslop for her comments on these weapons.

[19] The stylized moufflons' heads in sheet-gold from Hissar III might be mentioned in passing, but they are sufficiently remote from Gungeria ; (Schmidt, *Excavations at Tepe Hissar*).

The foregoing review of the copper hoards of the Ganges Basin and elsewhere in northern India has not perhaps advanced us in a positive fashion much beyond Vincent Smith's remarks of forty years ago. But we have seen that there is no good reason to believe that the tools represent a discovery of the principles of metallurgy independent of the Harappa culture, itself originally deriving its knowledge of copper and bronze working from the ancient cultures of Iran. The axe-types, even the aberrant bar-celts, belong basically to the primitive unsocketed form which so unaccountably survived in the Harappa culture long after it had been superseded elsewhere in the civilized Orient, and although the simplicity of the forms themselves give little opportunity for stylistic comparisons, such as are possible are not incompatible with Harappa derivation for the whole group. In the harpoons we see a specialized food-procuring implement translated direct into copper by people as yet unacquainted with forms proper to metal: here too is a suggestion that the acquisition of the technique of metallurgy by the fish-spearing tribes of the Ganges–Jumna plain did not necessarily bring with it any of the other elements of the higher culture from which it was obtained, and that a primitive food-gathering economy may have continued basically unchanged by the adoption of a metal equipment. In this connexion the iron barbs of the Andamanese harpoons mentioned above may be cited, or the iron points of the digging-sticks of the Chenchus of central India, who today are still purely in a food-gathering state of culture (20).

How this cultural borrowing was effected is at present completely obscure. The Harappa culture may prove to have an eastward extent as yet unsuspected, and further field-work may well provide some surprises. Examination of the sites of some of the hoards might not be unprofitable—the ' mound or tumulus . . . a few feet in height ' from which the Rajpur hoard came might yield early material, more accessibly situated than the huge early Buddhist sites at Muttra and Kosam (not known to antedate the third century B.C. on available material) which appear to have produced copper axes from some unspecified location and level. We do seem to have in the hoards, nevertheless, the expression of a uniform culture as yet unrepresented by other finds. The full content is unknown, but its date should lie somewhere near the close of the Harappa culture as we know it in western India, and certainly well before the third century B.C., when archaeological evidence for the full use of iron is available. We may plausibly equate the deposition of numerous and sometimes very large hoards with a period of disturbance and economic instability within the period 1500–300 B.C. in which we have rather vaguely placed our hoards. The legendary half-history of India abounds in such upheavals, earliest and most famous of which is the coming of the Aryans from the northwest, their settlement in the land of the Five Rivers, and their subsequent expansion eastward down the Ganges valley, to which the Fathgarh swords may perhaps bear witness. Beyond these possibilities we cannot go: elucidation of this ' Copper Hoard Culture ' is yet one more challenge to archaeological research in India both by field-work and by excavation.

Postscript to paper on Copper Hoards of the Ganges Valley

Since the forgoing paper was written Mrs Maxwell-Hyslop has drawn my attention to R. Heine-Geldern's paper, ' New Light on the Aryan Migration to India ', in *Bulletin of the American Institute for Iranian Art and Archaeology* (1937), v, pp. 7–16. Several points to which I have drawn attention independently have already been made by Heine-Geldern—the comparison between the trunnion axes from Turang Tepe and

[20] Fuhrer-Heimendorf, *The Chenchus* (1943), *passim*.

Kurram, the Punjab and Luristan swords and the Fathgarh hoard with its Caucasus analogues. Neither this paper, nor the author's other study in *Journ. Indian Soc. for Oriental Art*, IV (1936), were available to me when my own paper was written in India.

APPENDIX—LIST OF COPPER HOARD SITES

References to *Smith* are to Vincent Smith's paper quoted above; to JBORS are to the *Journal of the Bihar and Orissa Research Society*.

Site	Axes and Bar-celts	Harpoons	Various	Publications
Bargunda .. .. (Hazaribagh)	'Many'	—	Copper rings	Bruce Foote, *Prehistoric Antiquities, Madras Mus. Notes* (1916), 164
Bassia (Ranchi) ..	21	—	—	JBORS, I, 127–8
Bithur	14	4	Two. Cu. fragments	Smith
Bisouli	1	1	Copper 'human figure'	Information from Dr K. N. Puri 1944
Fathgarh	—	—	13 swords and 'human figure'	Smith
Giridih (Hazaribagh)	5	—	—	*Proc. Asiatic Soc. Bengal*, 1871, 231
Gungeria (Balaghat)	424	—	102 silver ornaments	Smith
Harni (Palamau) ..	23	—	—	JBORS, I, 239
Itawa	—	1	—	Smith
Kahabari	3	—	2 rough Cu. lumps	Smith
Kosam	1	—	—	Smith
Khunti (Ranchi) ..	5	—	—	JBORS, I, 239
Kurram (Palamau)	1	—	—	*Ann. Report Arch. Survey*, 1913–14, 247
Mainpuri	2	1	Copper rings	Smith
Manbhum (Ranchi)..	27	—	—	JBORS, II, 85
Muttra	1	?	—	Smith
Palamau	2	—	—	JBORS, I, 125; *Ann. Report Arch. Survey*, 1913–14, 246
Pariar	4	—	Broken copper object	Smith
Rajpur (Bijnor) ..	10	6	—	Smith
Tamajuri	1	—	—	Smith

Hut-circles in North-west Wales

by W. J. Hemp and C. A. Gresham

STONE-BUILT hut-circles occur in great numbers on the mountain sides of north-west Wales and the notes which follow are an attempt to set out some of the complicated problems to which they give rise; also to record efforts to solve one problem, and theories to account for others. Although similar huts are found in quantities inside many hill-forts, we are now only concerned with certain types scattered widely in the country side; but we recognize that full account must be taken of the huts in the hill forts before any final solutions can be reached (1). The distribution of the hut-types here under consideration is closely limited to the seaward slopes of the mountains which stretch from the estuary of the Conway river to that of the Mawddach, that is the coastal areas of Caernarvon and Merioneth between Conway and Barmouth, including the adjacent parts of Anglesey, but excluding most of the Lleyn peninsula. Broadly speaking these huts do not occur on the landward slopes of the higher mountains or further inland to the east. The huts, which are stone-built, are nearly all in the form of true circles from 5 to 25 feet in internal diameter, with a few still larger ones. Their walls are from 2 to 3 feet wide and rarely, if ever, more than 3 feet high, and they were undoubtedly covered by conical or rounded roofs, supported by internal, and perhaps in some cases external, upright posts (fig. 1).

We deal with these structures under four main headings :—I, Single huts; II, Unenclosed groups; III, Enclosed homesteads; and IV, Concentric circles, which, although three or four of the sites have been recorded, we believe have not hitherto been recognized as a special type of monument.

I, Single Huts (by C.A.G.)

Large numbers of isolated single huts occur throughout the area defined above; some of these are obviously related to the unenclosed groups, described below, and are treated with them, but the majority have no such association by which they may be classified. Huts like this, with no particular characteristics, are found in many of the Welsh counties, but, so far as they have been recorded, there appear to be but few of them outside our area. Some of these single hut-circles appear to be very ancient, being little more than vague rings of stones half-covered by the turf, but there is no evidence that they go so far back as, say, the Bronze Age. Others are certainly quite recent; these are poorly built, as compared with the unenclosed groups, but their walls often stand quite high. These are probably the temporary squatting-places of labourers such as shepherds and bracken burners.

II, Unenclosed Groups (by C.A.G.)

The unenclosed groups consist of two or three huts, sometimes more, each built as a separate unit. They may be quite apart, or touching, or linked by a short length of low wall. In a special type, found in one or two places in Merionethshire, the huts are

[1] In the present state of our ignorance of both forts and huts, it might even be argued that the origins of most, if not all, of the scattered huts in our area are to be found in the huts inside the hill forts, but it should be noted that there are marked differences between the two.

placed in a circle each linked with its neighbours by a wall, but not enclosed thereby (FIG. 2).

These huts are almost all built with dry-stone walling laid in courses from the foundations to a height, where not destroyed, of 2 or 3 feet. This style of building is

FIG. 1. SKETCH-MAP OF NORTH-WEST WALES
Showing the distribution of various hut-circle types, excepting those in hill-forts and large single huts with terraces near Holyhead

quite different from the orthostatic construction of the enclosed homesteads. The floor of the huts is never sunk below ground level, although on a steep hillside the back of the hut is generally cut into the slope. A single doorway about 2 feet wide is a regular feature.

Paddocks

Unenclosed groups are nowhere associated with the elaborate built-up terraces of the homesteads, but are characterized by small, irregular shaped fields, or compounds, to which the name *paddock* has been given. The walls that mark out these paddocks are very slight and rarely more than a foot high. They are mostly composed of small stones roughly thrown together in a heap, and often appear to be the dumps from the surface clearings of the plot which they surround. This, however, is not the full explanation, as in many places they consist only of a line of larger stones, set at intervals, showing that they had some signification as a boundary. In a number of cases the soil inside the paddock is piled up against the inside of the wall, which points to the fact that

Fig. 2. TYPICAL UNENCLOSED GROUP WITH SMALL PADDOCK ON MOEL DDU, DOLBENMAEN

the area has been cultivated. There is also the possibility that some of these walls are the last remnants of earth and stone banks, once sufficiently high to enclose livestock.

In size the paddocks vary from a small compound surrounding or near the huts and a few yards across, to a large field an acre or more in extent. Often also a whole mountain slope will be found covered with a maze of wandering walls crossing and twisting about in every direction with no obvious purpose. Generally speaking it would seem that the inhabitants of the unenclosed groups were a pastoral people, grazing their herds on the mountains and at times practising small-scale cultivations on plots cleared from the rough slopes near their homes.

Distribution

The unenclosed groups are found in large numbers in the coastal districts of Caernarvonshire and Merionethshire, as explained in the introduction to this paper, but, in more precise terms, it can be said that, while the enclosed homesteads occupy a narrow belt on

the foot-hills of the mountains to a great extent within the present limits of cultivation, the unenclosed groups are found in their greatest numbers on the higher and rougher mountain-sides proper. The line of division between the two areas is often well marked, but is not dependent on altitude so much as on the physical formation of the land (2). Where the slopes are open and suitable for cultivation the enclosed homesteads may occur up to 800 or 1000 feet, but where the rough, broken and rocky mountain-sides extend low down, the unenclosed groups are found almost to sea level.

The two types are often found in close proximity and, as would be expected, overlapping occurs in several places. But generally speaking it seems certain that the builders of the enclosed homesteads required open land—suitable for their methods of agriculture, above the tree covered lowlands, yet not too high or on the rougher mountain-sides. The builders of the unenclosed groups, on the other hand, sought the higher and rougher slopes as suitable for the grazing of their flocks. There is also the possibility that unenclosed groups may once have occurred in numbers on the lower mountain slopes and have since been cleared away, either by the builders of enclosed homesteads, if they came later, or by more recent agricultural operations. In this connexion it should be noted that while an enclosed homestead with its massive construction is a formidable object to be removed and its terraces almost indestructible, an unenclosed group could be totally obliterated by one man in a very short time.

Date

No dating evidence whatsoever has been produced from the unenclosed hut-groups of North Wales, nor is there any record of their scientific excavation. In fact the chance of making a datable find in one of these huts is very slight, as their occupiers were probably in a very low state of culture with none but perishable materials to hand. However, there is great need of an extensive exploration of these sites, in the hope that if enough are carefully examined some stray piece of pottery or metal may be found to give a clue to their age.

A general consideration of the types of huts and their distribution suggests that they may be of several periods. The great number of them that are to be found clustering on the mountain-sides would point, if they were all occupied at one time, to a much greater population than the land could be expected to carry. Then again the types of huts are varied, as are the forms of the paddocks, and some appear to be very much more ancient than others. The culture of remote mountain districts is very conservative, remaining in the same state through long periods of time and intolerant of any innovations from outside, so that an occupation lasting over quite a number of centuries is to be expected, rather than any short, intensive one. There is no evidence to suggest that any of these hut-circles go back as far as the Bronze Age, for the distribution of finds of that period points to a lowland occupation, chiefly centred in those areas where unenclosed groups are not found in their main concentrations. The shift of the population to the higher mountains is more likely to be subsequent to the deterioration of the climate in the Early Iron Age, which, it has been suggested, was one of the main factors in bringing to an end the Late Bronze Age in North Wales (3).

The close proximity of the unenclosed groups to the enclosed homesteads, and the limitation of both to a relatively small area of North-west Wales is suggestive of a close

[2] And also, probably, the surface geology, e.g. the areas adjoining the Caernarvonshire banks of the Menai Straits, which are partly covered by drift gravels show no signs of early cultivation.

[3] Royal Commission on Ancient Monuments in Wales: *Anglesey*, p. LIX.

connexion between the two; but, on account of the marked difference between the building technique and agricultural practises of each, I am inclined to regard the people who built them as belonging to separate cultures. If this be the case and until any contradictory evidence has been found, the most likely period of occupation for these unenclosed groups is, in my opinion, from the first or second centuries B.C. through the Roman period and into the Dark Ages.

Origins

The concentration of these stone-built hut-circles in a small and clearly defined area of North-west Wales strongly suggests that their builders were intruders to the district. The fact that that district is a coastal one, and backed on the east by a mountain country suitable for a similar occupation and yet void of such huts, suggests even more strongly that the intrusion was by way of the sea. In this connexion it has generally been considered that the hut builders came from Ireland, but, as is shown in the next section of this paper, stone hut-circles are not found there in any numbers; moreover the areas of North Wales which are regarded as having been most particularly settled by Irish invaders, the Lleyn peninsula, and the west coast of Arvon and Anglesey, are just those where there is no great concentration of unenclosed groups.

It is natural then to look for some other district within reasonable distance of North Wales where a concentration of similar hut-groups is to be found. The study of available literature on the subject suggests two such likely areas, the moors of Devon and Cornwall and the highlands of west Yorkshire. The huts of Dartmoor and Bodmin Moor are well known from various publications (4) and in type they resemble our unenclosed groups, having separate huts and adjacent 'corn plots', but they are fairly securely dated to the Bronze Age and this would not fit in with the inferences made above as to the probable date of the Welsh huts. Moreover the sea voyage is a relatively long one and, had it been undertaken, one would expect to find similar hut-groups in Pembrokeshire, the first landfall, but this is not the case (5).

West Yorkshire and possibly parts of Lancashire seem to me at the moment to be the most likely places in which to find the origins of the unenclosed groups. Grimes, in summing up the cultural position of Wales in the Prehistoric period (6) says '. . . the north coastal plain looks naturally towards Yorkshire and northern England generally'. Fox also makes the statement that 'the influences which unite to form the culture of North Wales are mainly derived from northern England . . . and northern and eastern Ireland' (7). Raistrick has carried out extensive field-work over most of the Pennines and we are fortunate in having a summary of his findings in his paper 'Iron Age Settlements in West Yorkshire'(8). On the limestone uplands of Craven and to a less extent throughout the Dales he has found over 500 sites, which from the description given of them appear to have affinities with our unenclosed groups. He says that 'the usual settlement of this type consists of a hut or occasionally two huts, a small croft adjoining, with well-built bank, possibly supporting a "stockade" fence, and one or two small fields'. It is difficult to say how close the similarity between the two types

[4] Curwen in ANTIQUITY 1927, I, 282, and *Proc. Prehistoric Soc.*, IV, 37; *Trans. Devon Assoc.* XXVIII, XXIX, XXXIV, etc.

[5] Cf. The distribution of Megaliths along the western sea routes.

[6] *Guide to the Collection Illustrating the Prehistory of Wales*, pp. 106–111.

[7] *Personality of Britain*, 1938, p. 70 fn.

[8] *Yorkshire Arch. Journ.*, 1939, XXXIV, 115–50.

of site is, without having seen both, but all the elements of the unenclosed groups seem to be present in the Yorkshire settlements, and allowances must be made for the difference in the geological structure of the two districts. The inhabitants of these sites seem to have been living in a poverty-stricken state of Early Iron Age culture, which continued through the Roman period but not after it. It is possible then to account for the migration of peoples from the Pennines to Snowdonia by suggesting that they may have been driven on by the pressure exerted against the Highland Zone of England from the south during the Early Iron Age. The distance from the mouth of the river Lune to the north coast of Arllechwedd is not more than 80 miles, and the high mountains, which rise directly from that coast, would make a conspicuous mark to steer for from far out at sea.

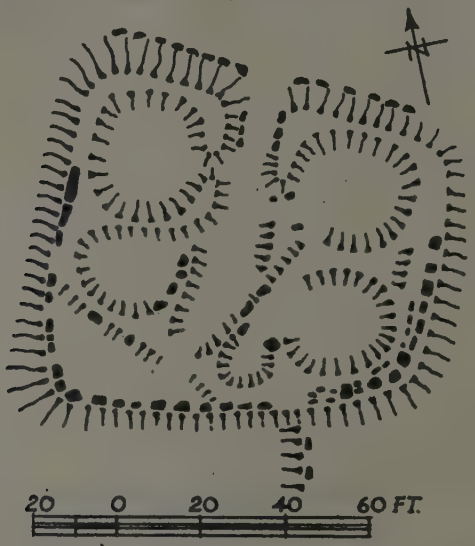

FIG. 3. ENCLOSED HOMESTEAD NEAR PEN Y BRYN UCHAF LLANWNDA

III, ENCLOSED HOMESTEADS (by W.J.H.)

The dwellings are of the general type described as ' courtyard houses ' and, for the most part, represent farmhouses composed of a group of huts, mainly circular, arranged round a courtyard and surrounded by a wall. Sometimes oval or oblong huts are included, but some of the last are the result of rebuilding and are due to later occupation. The enclosing wall is sometimes circular, at other quadrangular or subrectangular. Both huts and enclosure walls are of ' orthostatic ' construction, that is the foundations of the inner and outer faces are formed of large stones set upright in the ground ; the intervening space, if any, is filled with stones and clay and the wall raised to the required height by irregular courses of smaller stones. This method of construction is characteristic of the enclosed homesteads, but it is occasionally used for isolated huts and huts in hill-forts (FIGS. 3, 4).

TERRACES

The feature which chiefly distinguishes most of these North Welsh homesteads is their association with cultivation terraces. These are irregular platforms formed by

piling up the stones which covered the gently sloping and boulder strewn hill-sides on which the farms are usually sited, to form retaining walls for soil and so clearing the ground and making small level cultivation plots, which could be hoed or ploughed (9). These terraces differ in appearance from the longer and more regular ones termed strip-lynchets (10). They also presumably differ in origin and use, as the latter are the result of cultivation by ploughs drawn by animals, where long straight furrows are desirable.

The slopes in many cases are so gentle that there would be no difficulty in ploughing them in their natural condition once the stones had been removed. Therefore the apparent determination of the occupants of these dwellings to make such terraces is

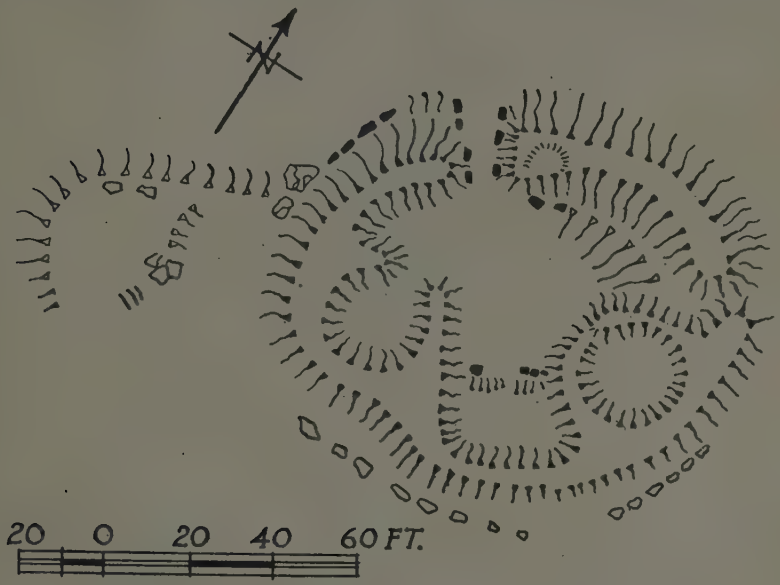

FIG. 4. ENCLOSED HOMESTEAD AT THE FOOT OF MOEL RHIWEN, LLANDDEINIOLEN
Cp. plan of the site in *The Archaeology of Cornwall and Scilly*, fig. 44, reproduced from *Arch. Camb.* 1866, p. 216

curious ; were they necessary for the clearing of the land and its cultivation, they would occur elsewhere and widely on the mountain slopes and foothills, which were certainly cultivated in early times (11), but this is the only area in Wales where these terraces are found.

My own feeling is that they represent a tradition and, if so, their origin should be found in the Mediterranean, where terraces are a necessity for cultivation on the steep

[9] The total area of ground so cultivated by the occupants of a single homestead might amount to 2 or 3 acres or more. The terraces themselves often exceed 5 feet in height.

[10] See *Arch. Camb.* 1923, plan opposite p. 293 and *Ant. Journ.* 1936, p. 296, pl. 50.

[11] Patches of strip lynchets do occur, e.g. in Flintshire above Holywell, but there the type is different, and the long strips are sometimes set sideways to the slope. Probably they are due to the Saxon occupation of the district. It may be significant that the place-name *Gerddi Beuno* (Beuno's Gardens) occurs among them. The Saint of that name was closely connected with Holywell.

and barren rocky hill-sides. It should be remembered also that, broadly speaking, round houses represent the stone building technique of the southern countries and rectangular the wooden houses of the north. But I am not at present concerned so much with the original home of the builders as to find parallels within reach of North Wales.

Distribution

The enclosed homesteads are not found in Wales outside the area defined in the introduction to this paper. Within that area they are found in their greatest number in a narrow strip along the foot hills of the mountains, starting from Aber, a few miles east of Bangor, and running through Llanllechid, Llanddeiniolen and behind Caernarvon to Rhostryfan and so south to Pant-glâs. There are many sites outside this particular strip, but the concentration noted there is important because it suggests that the enclosed groups centred on the Roman Fort of Segontium.

Date

The approximate date of these dwellings is indicated by two excavations, those of Mr Howel Williams at Rhostryfan (**12**), which produced finds of pottery and metal of the second century A.D., and those of Mr B. H. St. J. O'Neil at Caerau, Clynnog (**13**), where the finds were dated to the second and third centuries A.D.

The enclosed homesteads were therefore inhabited during the period of the Roman dominance of North Wales and, if the obvious explanation, the intrusion of a tribe, is the true one, such a settlement could only be due to, or sanctioned by, the Romans.

Origins

The problem therefore is to find another area, or areas, where courtyard houses of this type appear in association with small cultivation terraces.

As the generic name given to huts in North Wales for centuries past (**14**) is *Cytiau'r Gwyddelod*, 'The huts of the Irish', Ireland would appear to be the obvious place to seek this combination, especially as the settlement of areas of the Welsh coast by Irish peoples is a well attested fact. But enquiries, supplemented by several visits to Ireland, produced no evidence of any terraces in that country, except two sets observed by myself in the medieval monastic sites of Glendalough in the east and Corkenroe near Galway, in the west. Wicklow and the east coast generally is apparently barren of huts, and only in the western area, in the neighbourhood of Sligo, have I seen enclosed groups at all comparable, and they are distinguished by the presence of souterrains, as in Cornwall (**15**) and parts of Scotland (**16**), which are not known to occur in Wales. Mr H. G. Leask, of the Office of Public Works in Dublin, has very kindly had a search made in the survey material so far collected, but finds no record of any closely related examples of hut-circles.

But the association of the settlement with Roman policy suggests also its connexion with an area where the empire was in close touch with virile and restive native tribes, men whom it might be desirable to transfer to a district where their vigour might be of use in controlling other restless natives and so converted from a liability to an asset.

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[12] *Arch. Camb.* 1922, 335–45; 1923, 87–113 and 291–302.

[13] *Ant. Journ.* 1936, 295–320.

[14] As recorded by Camden in 1607, J. E. Lloyd, *A History of Wales*, p. 111, n. 67.

[15] H. O'Neil Hencken. *The Archaeology of Cornwall and Scilly*, p. 132, *et seq.*

[16] V. Gordon Childe. *The Prehistory of Scotland*, p. 189, *et. seq.*

Such a method was frequently employed by the Romans, and its application to Gwynedd at the end of the fourth century by Stilicho, as part of his scheme for the reorganization of the northern frontier of Britain, was suggested by R. G. Collingwood (**17**) to explain the ' invasion ' and ' conquest ' of North Wales by ' the sons of Cunedda ', an event which could only have been due to Roman instigation. Collingwood's suggestion was endorsed on linguistic evidence by Prof. Ifor Williams (**18**), who shows that the original home of the tribe was the neighbourhood of North Berwick, the main centre of the territory of the Votadini.

Between *c.* 142–3 and *c.* 150 Lollius Urbicus in the course of the earlier reorganization of the Antonine wall, deported complete tribes from the Votadinian area north of Hadrian's wall, tribes which had become too strong for Roman security (**19**). My suggestion is that in doing so he anticipated the action of Stilicho and that some of these deportees were settled in the coastal areas of Caernarvon and Merioneth, among potentially hostile natives, where all could be controlled from Segontium.

One essential for the acceptance of this theory would be the existence of courtyard houses, associated with terraces, in the country of the Votadini.

The Scottish Border

In a recent article in Antiquity (**20**) on the Native Settlements of Northumberland, Mr A. H. A. Hogg republished a number of plans of sites in that county, and three of these—Gunnar Peak, West Corbie Crag, and Milking Gap—suggest close resemblance with the North Wales houses. Of these Milking Gap has been dated by excavation to A.D. 120–180 and Gunnar Peak has produced second century Roman pottery. But as to terraces, Mr Hogg says ' The cultivation-terraces which are such a striking feature of the Cheviots seem everywhere to be later than the native sites '.

Mr Angus Graham published an article on cultivation terraces in south-eastern Scotland (**21**) and his general conclusion was that most should be dated to the late Middle Ages or later.

The position, then, has been that detailed information had been published about terraces on the Scottish side of the border, and some account of homesteads on the English ; but no definite opinion could be formed without examination of the Northern area by one familiar with the siting and peculiarities of the Western, or *vice versa*.

The Scottish Ancient Monuments Commission had surveyed the Roxburghshire side of the Cheviots, and the Welsh much of Caernarvonshire, so that a joint visit was indicated and this was arranged recently, as Mr Graham, the Scottish secretary, was using his car in some parts of the Northern area for special war purposes. Unfortunately sudden illness prevented the tour, but I was able to spend three days in visiting sites in the Bowmont Valley on the Scottish side of the Cheviots (**22**).

The physical conditions there differ considerably from those where most of the Caernarvonshire sites are to be found ; the hill-sides are generally steeper and much

[17] R. G. Collingwood. *Roman Britain and the English Settlements* (1941 ed.), p. 289.

[18] For a convenient summary by C. A. Gresham see Antiquity 1942, xv, 237–57.

[19] *Roman Britain*, pp. 142 *et seq.*

[20] Antiquity 1943, xvii, 136.

[21] *Proc. Soc. Ant. Scotland*, 1938–9, pp. 289–315.

[22] Dr Christison (*Early Fortification in Scotland*, p. 355), gave some description of some of these Bowmont homesteads and other sites which he comprehensively terms ' forts '. See also his plans of ' unfortified enclosures ', p. 370, and reference to Bowmont terraces, p. 373.

more smooth and regular. Stone is scarce, nearly all of the few outcrops have been quarried and sites have been considerably robbed, e.g. hill-forts for the building of 'homesteads' and the latter to make modern walls and 'stells'—the ring walls built to shelter sheep. It is therefore difficult to be sure from its present appearance whether a much-robbed homestead was ever enclosed by a wall. I was however satisfied that both enclosed and unenclosed groups of huts did exist and that the former correspond closely in their size and arrangement with the Welsh examples.

Terraces

As to the terraces, the evidence was much more difficult to interpret as it had been blurred by the very extensive ploughing and terracing of later times—as is well shown in the illustrations to Mr Graham's paper quoted above—which would on most sites tend to combine with, and eventually wipe out, the earlier terraces. Also the steepness of the hillsides precluded the irregular terraces, characteristic of the normal Welsh sites such as Rhostryfan, and enforced a degree of symmetry, as in Wales also, on comparable sites, e.g. the hill slopes west of Aber.

I was however satisfied that in at least two cases earlier terraces had survived and were recognizable by their short and compact nature, not due to the lie of the land, and by the smallness of the area they covered. One of these sites was at the foot of Percy Law, on the hillside opposite to, and half a mile east of, Cliftoncote, but I had no opportunity of examining it closely. The other was immediately adjoining the best preserved homestead I saw, one which also most clearly resembled the Welsh house sites. Here the short terraces were directly below the homestead and were partly faced with stones, which fact alone was enough to differentiate them from the very great majority of the medieval strips. The homestead is close to Sourhope in the parish of Morebattle, one of a group ranged along the hillside at a height of 900 feet, and that nearest to the farm. It is roughly rectangular with rounded corners, measuring about 100 feet by 85 feet. The enclosing wall is about 15 feet thick and has inner and outer faces of large stones. The interior features have been cleared away, but similar sites contained from two to four or five circular huts of 18 to 20 feet diameter, represented by low walls of similar construction to the enclosing wall. In general the structural details resemble those of the Welsh sites very closely, but there is less tendency to choose fairly level ground, even when such was available, and they are often sited on a sloping hillside.

To sum up: in the restricted area I visited I found some evidence to support my theory and none to disprove it. But a wider survey is needed. Some of the Westmorland sites, of which the plans were published in the Westmorland volume of the English Monuments Commission, suggest affinity, but not identity, and the typical terraces do not seem to occur, although 'in some cases strip-lynchets, approximating to the medieval type though of uncertain date, occur in the vicinity of the hut-group'. Irregularity of *width* is noted and the existence of small stone walled fields, e.g. at Crosby Garrett, where the plan (p. 75) shows other features common to the Welsh sites.

But neither presence nor absence of similar sites in other spheres of Roman influence need affect the theory (23). I have therefore omitted reference to hut-sites in Yorkshire and Lancashire, which are mentioned in the earlier part of this paper, and to a number in Scotland.

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[23] Dwellings in the parish of Manor, Peebleshire, in several ways comparable with the 'homesteads', were apparently occupied in medieval times. *Proc. Soc. Ant. Scot.*, LXXV, 92. Were they lineal descendants of the neighbouring early sites?

It is of course obvious that the suggestion here given represents only a narrow approach to a very wide and difficult subject and one which takes no account of historical evidence.

The Cornish problem is more complicated, as courtyard houses having a superficial resemblance to the Welsh buildings do occur there. Fortunately the evidence has been collected and summarized by Dr Hencken in the work already quoted. He reproduced plans of three of the houses—at Chysauster and Bodinar, in fig. 44, together with one

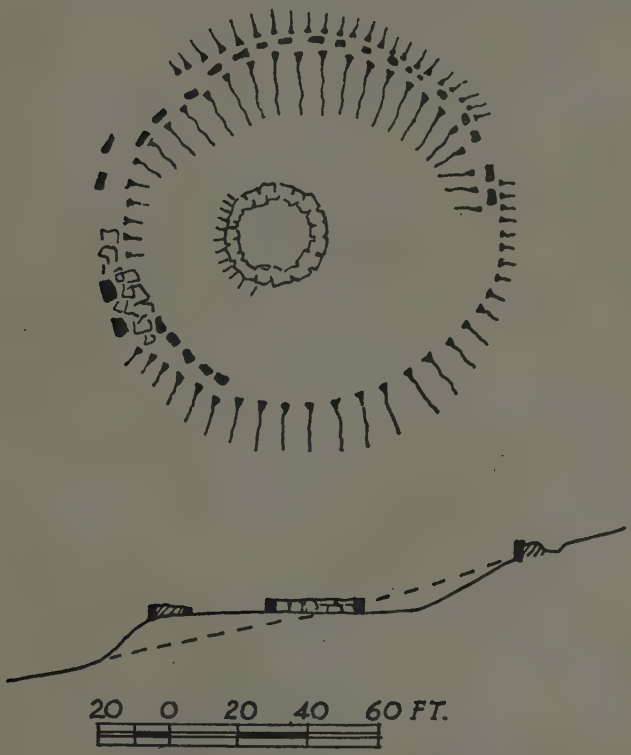

Fig. 5. CONCENTRIC CIRCLES BELOW MOEL FABAN, LLANLLECHID

in Caernarvonshire (24). Unfortunately the 1866 plan of this homestead records a structure which is not in the least typical, either in the shape and number of its chambers, or in having an encircling passage-way, which is without parallel in Welsh sites and appears to be quite purposeless. These abnormal features, which are not now visible (see FIG. 4) and were probably the result of unskilled excavation in a mass of loose stones, increase the apparent resemblance to the plan of the Cornish ones and have, I

[24] *Arch. Camb.*, 1866, p. 216. This plan is labelled *Llanllechid*, but the description on p. 266 correctly describes it as at the foot of Moel Rhiwen in the parish of Llanddeiniolen. See FIG. 4 of this present paper, the result of a recent survey.

think, misled Dr Hencken to suggesting a too close affinity between the Cornish and Welsh sites.

Slight terraces or 'lynchets' do occur in Cornwall, but, as Dr Hencken says of those associated with Bronze Age settlements, they seem to be the natural result of cultivation on a slope, rather than deliberate structures, and the amount of levelling is negligible (p. 100). The same description seems to apply to the 'artificially terraced garden plots' and 'enclosures bounded by low banks' at Chysauster (p. 133).

Another important difference is that the Cornish houses are grouped in villages, rather than scattered over the country as farms (25) and, as mentioned above, souterrains occur.

I would therefore suggest that these Cornish villages, which are restricted to the Land's End district, are likely to represent another settlement of 'foreigners', and that any connexion with the Welsh sites is remote and outside the bounds of this paper.

IV. Concentric Circles (by W.J.H. and C.A.G.)

The sites so termed consist of a central 'hut circle' surrounded by one or two more or less concentric circles of walling. Most of those that have so far been noted are built on sloping ground, and the area within the second ring is cut back into the slope at the top and terraced out at the bottom, thus forming a fairly level circular area on which the central hut is placed. This form of construction was probably adopted as a means of obtaining a dry site for the hut, for the upper side of the outer ring would serve to deflect the surface water to either side of the levelled platform. Where the rocky nature of the site prevents any extensive excavation into the slope only the central hut itself is so levelled. Sometimes there remain the traces of a walled passage-way through the two outer circles, but the low walls of these circles, if they carried no superstructure, can have had little, if any, defensive value. The size of these circles varies from about 80 to 200 feet in overall diameter, with central huts of 24 to 30 feet internal diameter. The amount of cutting back and terracing up may be quite slight or rise to 7 or 8 feet, according to the steepness of the slope.

One of the best known sites and a fairly typical example is that at Hafotty-wern-lâs near Rhostryfan, published by Mr Howel Williams (26). Here the central hut has been cleared away and the outer circles have diameters of 80 and 200 feet. A well preserved site is one near Coetty-mawr in the parish of Llandecwyn, Merioneth (27); it is built on a rough mountain side and the central hut only is levelled and surrounded by two concentric walls about 5 feet wide, which can never have been more than 2 to 3 feet high, if as much (FIG. 6). The *Muriau Gwyddelod* above Harlech are probably mutilated examples of the same type of structure, the central hut having been removed and the two enclosing walls combined with added field clearings to form a single thick one (28). Another site, in this case with a single enclosing wall, is that near the *Carneddau Hengwm* in Llanaber parish, Merioneth. This was examined and planned by Mr O. G. S.

[25] See plan of Chysauster, p. 134.

[26] *Arch. Camb.* 1922, p. 339. N.B. the crescent-shaped enclosure adjoining the circles to the north is a normal cultivation terrace.

[27] A somewhat muddled description of this site is given in R.C.A.M. Wales, *Merionethshire*, no. 212 (1).

[28] R.C.A.M. Wales. *Merionethshire*, no. 160. The plans by Mr H. H. Lynes there published are fanciful and his observations may be ignored.

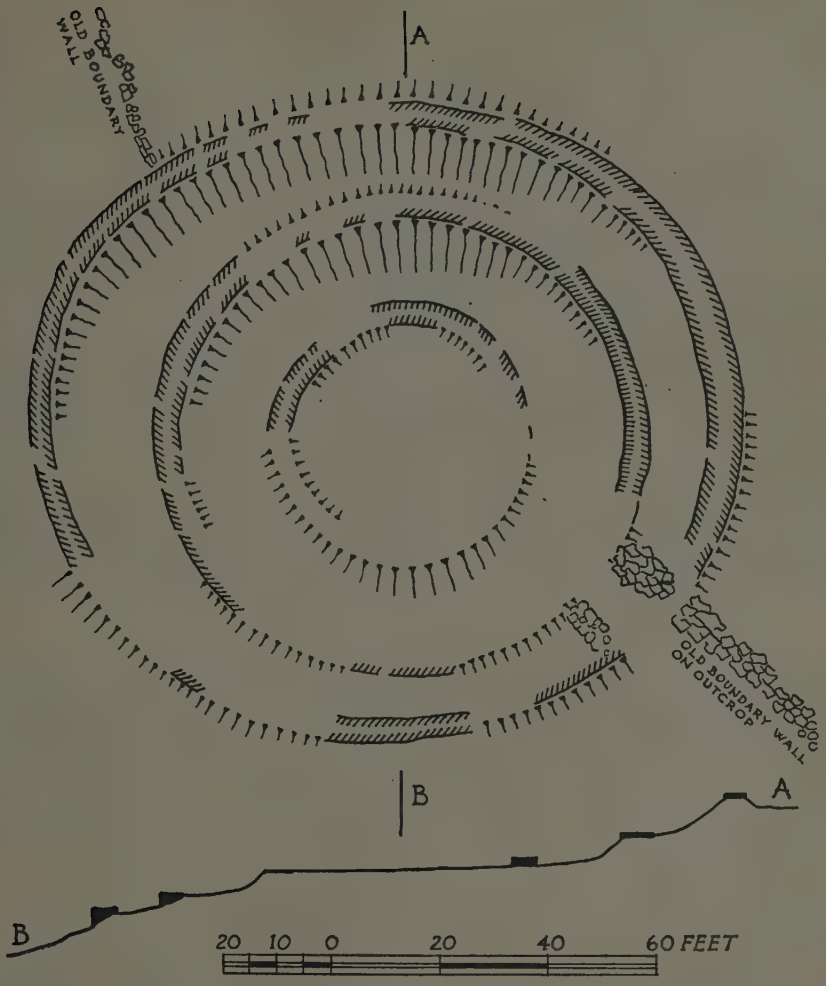

FIG. 6. CONCENTRIC CIRCLES NEAR MAES Y CAERAU, LLANDECWYN, MERIONETHSHIRE

The continuous lines represent the remaining wall faces; elsewhere the walls are represented by fallen stones. All the surface except the central hut-area is very uneven owing to outcrops of rock.

Crawford in 1919 and named by him ' Egryn Fort ' (29). A not very accurate plan of a good site near Pen-y-groes, Caernarvonshire, is published in *Arch. Camb.* (30), and here the ground is level and the central hut has two concentric walls round it. Mr Bezant Lowe gives a photograph of a partly destroyed site above Aber (31). Altogether some 14 of these concentric circles have now been noted in the partial survey it has been possible to make of the areas covered by the other hut types, of these 5 are built on level ground. The known sites are more or less evenly spread out over the district, with the greater proportion in Merionethshire, but this may be due to the closer examination which we have been able to make there since we recognized these structures as a distinct type.

At several places these circles occur in pairs, e.g. at Llanllechid, at Egryn, where there is a second heavily terraced site 500 yards to the NW. of the ' Egryn Fort ', and near Harlech where there is another 100 yards NNW. of the *Muriau Gwyddelod.* Moreover the close proximity of the concentric circle sites, at Hafotty-wern-lâs and Llanllechid, to terrace systems of adjacent enclosed homesteads suggests that they form part of the same complex.

We can only guess at the purpose of these structures—a ' temple ' or ' tribal centre ' was the first idea, but on the whole the simpler explanation of ' residence ' is more likely to be the true one. If so, the size and the distinction afforded by the encircling walls suggests the home of a chief, but in any of these explanations the arrangement in pairs is difficult to understand.

We know of no parallels to these structures outside our area, and none similar were seen in the Bowmont valley. Three instances of a round hut enclosed by a single circular wall are recorded and planned in the Sutherland Report of the Scottish Commission, nos. 36, 63, and 498, but they are on a smaller scale and do not appear to have any close affinities with the Welsh sites (FIGS. 5 and 6).

POSTSCRIPT

It is clear that none of the solutions here offered are final, and one major problem has not been touched; that is how were the occupants of other highland regions housed? Regions, including those adjacent to the areas of which we treat, which were often just as well provided with stone as a building material and which were certainly closely settled during the same period. Slight circular hollows, or platforms in some of the hill forts suggest the former existence of huts built of some impermanent materials, but even these signs do not seem to have been recorded outside the forts.

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[29] *Arch. Camb.* 1920, pp. 114–16. The excavation produced an iron ring, possibly a terret ring.

[30] *Arch. Camb.* 1919, p. 534.

[31] *The Heart of Northern Wales*, vol. I, p. 113.

The Wisby Armour*

by Ellis H. Minns

WALDEMAR ATTERDAG (1340–1375) was the ablest Danish king in the Middle Ages: Danes have the same uneasy pride in his exploits that we have in those of the Black Prince. His father had lost all his kingdom, but by 1360 Waldemar had won it all back; Jutland and the Islands from German mortgagees, Scania from Sweden. But he wanted money, so he made an unprovoked attack on the rich island of Gotland.

Gotland was quite unique; it had once been the queen of the Baltic and the commerce of its peasant-merchants stretched from Novgorod to London. Upon it had arisen the city of Wisby, half full *Theuthonicorum Gutlandiam frequentantium*, once chief of the Hansa but now declining, giving way to Lübeck. Waldemar landed in south Gotland 22 July 1361, defeated the peasants in two battles and in a third on the 27th. Two days later he entered Wisby through a breach made by the citizens in their splendid walls. It looks as if they had connived at his expedition; from the city he took three beer-barrels full of gold and silver, but he guaranteed its privileges and extended them to be valid throughout the Danish dominions; its decay was not to come for another two hundred years.

To the peasants on the contrary he brought ruin; hoards buried to foil him show what had been their wealth, to it testify still more clearly the marvellous village churches, but now everything stopped dead—no more wealth, no more building.

The third battle was fought outside the south gate of Wisby: tradition says that 1800 peasants fell, they were buried in five great common graves near the Cistercian nunnery of Solberga; a few years afterwards a cross was set up asking prayers for the Gotlanders who *ante portas Wisby in manibus Danorum ceciderunt* (1). The first of these graves was excavated by Dr O. V. Wennersten in 1905, the second and third in 1912 with great but not consummate care. To Dr Thordeman was entrusted the task of completing the investigation of the second and third in the years 1928 to 1930, also he just opened a fourth grave, and a fifth grave had probably been spoilt by buildings a century ago. The uncovering, preserving, registering and removing of the finds offer an outstanding example of modern methods of accuracy and ingenuity. To deal with the material and to publish it took another ten years. The book bears date 1939, but only reached us this year.

In old days after a battle the dead were mostly stripped of their armour, clothes and possessions; we see this being done on the Bayeux Tapestry and in a picture from a

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* *Armour from the Battle of Wisby*, 1361, by Bengt Thordeman. Kungl. Vitterhets, Historie och Antikvitets Akademien, Stockholm. Uppsala, 1939, 2 vols., I, pp. 480, ff. 426; II, plates 133.

[1] Surely not as translated, p. 23, 'who fell into the hands of the Danes', but 'fell (*i.e.* were slain) by the hands of the Danes', a Hebraism copied from the Vulgate, e.g. I. *Chron.* xx, 7, *qui ceciderunt in manu David* (found for me by Canon W. L. Knox).

15th century MS. here reproduced (p. 94, f. 76). At Wisby, shields, helmets and offensive weapons were taken away, but it was not always possible to remove all the clothing or body armour, probably because the many corpses were too far decayed in the summer heat, so a good deal went into the pits.

The finds consisted of the bones, the armour and the miscellaneous objects. The number of individuals, reckoned at 1185 in three graves out of five, agrees pretty well with the traditional 1800. The skeletons were treated with the greatest care by Dr B. E. Ingelmark. They tell us of the physical condition of the fallen, the wounds inflicted on them, and their age. The wounds are what might have been expected, mostly on the head or extremities beyond the cover of the shield; a man had often received many wounds in the fury of battle, but of course many wounds do not touch the bones; there are several cases showing the penetrative power of crossbow quarrels. It is clear that every possible man was mustered, not only those of military age, but mere boys and quite old men, even hunchbacks and cripples. These poor people were mostly in graves 1 and 3, the fittest and the best equipped in grave 2.

Of the miscellaneous finds the chief were coins, especially one bagful; their importance is for technical Scandinavian numismatics: there were also many buckles from the clothing.

Most of the armour was chain-mail, some two hundred coifs and remains of many hauberks, but there is little to be done with them as mail rusts into inextricable lumps. Small items are spurs, iron shoes, horse shoes, mail-gauntlets and gauntlets of plate, five of the latter are well preserved and represent an earlier stage than those of the Black Prince.

How imperfect a protection was mere mail can be seen, for instance, in Mr Pierpoint Morgan's 13th century MS. of scenes illustrating the Old Testament; swords, axes and spears go right through it to inflict the direst wounds. Hence the need to reinforce it and the great interest that attaches to the first attempts to meet this need. Such attempts we find here in the 'armours', the sleeveless coats built up of plates of various sizes and on different systems. Of these twenty-five are complete enough to be displayed upon dummies. Which belonged to Gotlanders and which to Danes cannot be settled, but one gets the impression that the greater part of them were out of date stuff hurriedly furbished up by a peaceful population. Only no. 7 had any heraldry about it. Of the three little shields it bears, one with three roses suggests the Danish house of Lange, but it is the most commonplace of coats (more than fifty such in Papworth); still one is inclined to assign it to a Danish man-at-arms.

One armour (no. 25) stands quite apart from the rest. Originally it consisted of some 700 flat strips of iron, normally 9 to 9.5 cms. long and 2 cms. broad, with one long side convex, which overlaps, and pierced by 7 holes. Out of these was made up a shirt opening at both sides, but with some protection over the shoulders, each plate being laced to its neighbours above, below and on each side, but not fixed either under or over any leather or textile (FIG. 1). Such armour is called by our author 'lamellar'; it must be distinguished from scale-armour—scales are more curved in shape, overlap in a different way and are sewn or riveted to a backing—and also from the 'coat of plates', that is the system of the other twenty-four. Lamellar armour is definitely Asiatic and seems to go back to the Parthians and Sarmatians, the true ancestors of the medieval knight. S. P. Tolstov in his *History of Uzbekistan* convincingly claims for Chorasmia as against Iran, the invention of the sort of warrior who dominated the battlefield from Carrhae to Crécy. Lamellar armour survives in Tibet and among the Japanese who have allowed contiguous

lamellae to coalesce (2). Dr Thordeman's exhaustive study of such armour even amplifies that given by B. Laufer (3). This particular coat must have been brought out, badly put together, and made like a coat of plates by having leather roughly riveted all over it.

For the other twenty-four armours the author uses the term 'coat of plates'; 'splint armour' Mr G. Manns says is the genuine English name. It must be carefully distinguished from what we call 'plate-armour', anciently 'all-white armour' which had no covering and was made up of much more specialized pieces. It may be as well to give warning that Laufer (op. cit.) and American anthropologists use the term 'plate armour' for 'lamellar armour' especially when made of bone. In these twenty-four armours the

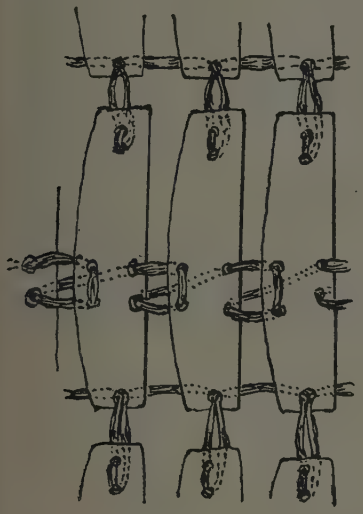

FIG. 1. No. 25, restored lacing

FIG. 2. No. 9

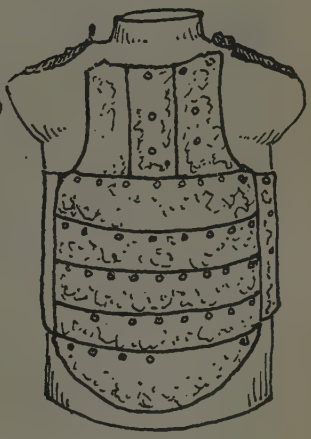

FIG. 3. No. 1

essential is a belt fastened behind and made up of one, two or three rows of oblong plates set vertically; more plates shaped to fit may be added above to protect the breast (FIG. 2), more below to cover the belly, other additions made for the shoulders (FIG. 3). Also the opening may be shifted to one or both sides, or even made down the front. One form (no. 24) is actually not very unlike lamellar armour having as many as 550 plates, not laced but riveted to line a leather coat, much in the fashion of the later brigandine. The future however was with the opposite tendency to make the plates few and big, as few as eight, to make the lower ones in front into horizontal hoops, even to rivet together the upper front plates. These are steps in the evolution of true plate armour. They go some way to fill in a gap in our knowledge, for we have very few examples of armour as it grew over the mail to form a complete armour of plate, a piece at Churburg, one from Sempach, two from Küssnacht, a few plates from Tannenberg

[2] See M. Garbutt, 'Japanese Armour from the Inside', *Japanese Society of London*, 1912, XI, 134–85, esp. p. 143 for remarks about the disadvantages of lacing.

[3] 'Chinese Clay Figures', *Field Museum, Chicago* (*Publication* 177, *Anthr. Ser.* XIII, 2, 1914).

near Darmstadt. Even such a book as Laking's *Record* has little about the growth of plate (4). Otherwise we are dependent on monumental effigies and MSS, and these are most carefully brought together by Dr Thordeman, so as to show how the Wisby material falls into place. His most instructive picture, as giving back as well as front, is from the sedilia (*Levitenstuhl*) in the cathedral of Verden.

The leaders of the Danes, e.g. Christopher, Waldemar's son, whose effigy dated 1363 we have at Roskilde (p. 115, f. 107), were probably right up to date with true plate-armour. What we have here was antiquated and any way ought to have been worn over mail, but these peasants had to choose, mail *or* plate, so as to make defence go further, and it was the insufficiency of their armament which laid them in the common graves.

Never have I met with a book so fully illustrated. There are plans and views of the site, views of the cross, plans and reconstructions of Solberga Nunnery, sections of the graves, photographs of such bones as individually presented any interest, photographs of the armours and other objects as they lay among the bones, and diagrams carefully drawn, layer below layer, to show how the individual plates lay, and how they could be restored to what must have been their original order; and finally we are shown dummies with the plates or reproductions of them arranged in place—all this apart from the comparative material from all western Europe and in the case of no. 25 from all Asia.

It is interesting that Dr Paul Nørlund of the National Museum at Copenhagen took a great share in the work and that his Museum received some of the armours as a gift from the Swedish Government, a happy example of Scandinavian cooperation. The production of an English edition is a further example of Swedish liberality, for which we are duly grateful. But it is Dr Thordeman who has our main congratulations and thanks.

[4] See Ct. O. Trapp and J. G. Mann, *The Armoury of . . . Churburg*, 1929 and Mann in *Archaeologia*, 1935, LXXXIV, p. 69, also F. M. Kelly, *Apollo*, 1930, p. 37.

Beads from Taxila*

by Dorothy Mackay

THE appearance of this publication, belatedly arrived in this country owing to the circumstances of war, spurs me to recall to the notice of students of Eastern archaeology the importance of beads as evidence establishing cultural contacts and, as will be seen, with certain reservations, for dating. Like pottery, beads have a durability that in favourable conditions of protection from weathering or corrosion by some constituent in the soil in which they lie, preserves shape and colour and decoration. Study of the natural sources of the materials of which they are made throws valuable light on trading and trade routes; in their decoration and techniques of manufacture we find evidence of contacts with other peoples, and at what periods. There are, however, two pitfalls for the unwary: in addition to the supposed possession of magical properties—so often ascribed to beads in early days—such as protection from the evil eye or from disease, sentimental and aesthetic reasons also may cause beads to be preserved from generation to generation; and, being small and mostly rounded in one plane at least, they are likely to roll down or be washed by rain from their original level. Besides remarking in his Introduction that the large amount of wear on some of the beads found in relic caskets at the Dharmārajikā Stūpa and elsewhere at Taxila suggests that they were already old and valued at the date when they were buried, Mr Beck gives a striking example (p. 5) of a bead from Mesopotamia that was still highly prized and re-used after many centuries: namely, the double onyx bead, now in the Ashmolean Museum, Oxford, which bears two dedicatory inscriptions to Ningal, by Abieshu, *c.* 2000 B.C., and by Sennacherib about 700 B.C. Thirteen centuries unrealized might well befog an argument on dating. Of beads being found in what appear to be other than their original positions, a possible example on a large scale is the so-called 'bead-layer' at Nineveh (H. C. Beck, 'Beads from Nineveh' in Antiquity, 1931, v, 427–37), but isolated beads are found around the base of many a mound at desert sites in the East that have undoubtedly rolled or been washed down by rain from higher levels.

With this posthumously published work of a keenly enthusiastic and scientific student of beads and the techniques of bead manufacture, I would like to associate his parallel 'Report on Selected Beads from Harappa', which appears as chapter xv, part i, in *Excavations at Harappa*, by Madho Sarup Vats, M.A. (2 vols., with plans and plates; Government of India Press, Calcutta, 1940). In spite of the difference of date, some two millennia, there are certain interesting parallels in the technique of manufacture of the beads from the two sites, even though in their shapes and some of the materials used there is considerable dissimilarity. No beads of gold or silver appear to be known from Taxila, whereas garnet, glass, pearl, coral and (?) jet are materials used there, which seem to have been unknown to the bead makers of the Harappa civilization. The two reports are written on the same lines, with a wealth of scientific detail, even to microphotographs—in the report on the beads from Harappa—of sections to show the

* *The Beads from Taxila* (Memoirs of the Archaeological Survey of India, No. 65). By Horace C. Beck, F.S.A., edited by Sir John Marshall, C.I.E., D.LITT., F.S.A., F.B.A. *Government of India Press, Calcutta*, 1941. 8*s* 6*d*.

effects on the stone of the ' etching ' of carnelians, described below, and in each report Beck devotes two plates to the classification of beads according to their shape, after the valuable scheme outlined by him in *Archaeologia*, vol. 77, 1927. But the writer was evidently not happy that the beads sent to him for examination were ' selected ', even though they were all well documented for findspot and level, and dated to the century. In the introduction to the report under review he says : ' With a collection of selected beads such as these it is impossible to say whether any given specimen is a rare or common type '; in the other report : ' The fact that I cannot see the whole collection has made it very difficult to weigh the probabilities of such a subject as importation from foreign countries '. None the less, such parallels with the beads from other lands as he was able to establish from outside sources, and in part from his own large collection, make most interesting reading ; especially is this so in the section devoted to the glass beads from Taxila, among which many striking resemblances to various European beads are to be found. He cites glass beads from Corsica and Sardinia, from Etruscan tombs, from Cyprus, France and England, which are closely paralleled at Taxila. Of the ' eye beads ' from the Bhir Mound, Beck writes : ' These beads are all virtually identical with beads found round the Mediterranean where they date from the ninth to the third century B.C. The date of exactly similar beads is given in connexion with the various specimens. The resemblance is so close that I am convinced that these beads were either actually made in the Mediterranean area, or at least by men who came from that area, or had learnt how to make them from workmen who came from Mediterranean countries '. He rules out Persia as a possible source of the Mediterranean beads on the ground that specimens from Persia are very rare.

For detailed description the beads from Taxila are grouped by the materials of which they were made ; only those which represent animal, bird and insect forms are grouped together as amulets, despite being of several different materials. Of all the beads from the site, pride of place is given to the ' etched ', or ' decorated ', carnelians. These beads have been found in a wide range of countries, from Russia to the South of India (where they occur in megalithic tombs), including Syria, Mesopotamia, Persia and Baluchistan, but not, it should be noted, Egypt. When specimens were found in graves of the ' A ' cemetery at Kish, examples were sent to Sir John Marshall, then Director General of Archaeology in India, for comparison with beads from ancient Indian sites ; bead-making has always been practised in that country, and the cutting and export of carnelian and agate from Cambay seems to have been fairly continuous from the time of Pliny (A. J. Arkell, ' Cambay and the Bead Trade ' in ANTIQUITY, 1936, x, 292–305). In 1925 the attention of archaeologists was called to etched carnelians, as furnishing evidence of cultural contacts between the ancient cities of Sumer and the Indus valley, in the *Journal of the Royal Asiatic Society* (Mackay, ' Sumerian Connections with Ancient India ', op. cit. pp. 697–701, pl. x). A brief description by Mr F. H. Andrews of the Central Asian Museum, Delhi, of the probable method of producing the white decoration on the beads, included in this article, aroused Beck's curiosity. And in ' Etched Carnelian Beads ' (*Antiquaries Journal*, October 1933, pp. 384–98, pls. LXVI–LXXI) he described with microphotographic illustrations the actual effect of the etching of the white designs upon the stone. At the same time a detailed account of the method of etching carnelians, as still practised in Sind and seen by Mackay and N. G. Majumdar, appeared in *Man* (Mackay, ' Decorated Carnelian Beads ', op. cit. vol. XXXIII, no. 150).

Taxila alone, of all the sites from which etched carnelian beads are known, has so far produced all the three types into which Beck divides them, according to the technique of decoration : namely

Type I. White designs on the natural red of the stone
Type II. Black designs on a white background
Type III. Black lines on the natural red of the stone.

But the beads of Type I from Taxila bear designs quite unlike those from earlier sites, save that the central cross of the fine bead, pl. I, no. 5, of the third century B.C., is seen on a broken etched carnelian from Kish. To the sites mentioned by Beck as producing beads of this type can now be added Ras Shamra on the Syrian coast and Chanhu-daro in Sind. At the former site, Commander C. F. A. Schaeffer informs me, only beads of Type I have been found so far, and some of these have radial lines round the edge, closely resembling specimens from the tombs of Sulur in the district of Coimbatore, Southern India (*Antiquaries Journal*, 1933, op. cit. pl. LXIX, fig. 3)—a somewhat surprising and unexpected parallel. The presence among the Type I beads from the excavations of the American School of Indic and Iranian Studies and the Boston Museum of Fine Arts at Chanhu-daro (Mackay, *Chanhu-daro Excavations*, 1935–1936, American Oriental Series, No. 20, 1942, pp. 199–202, pl. LXXIX) of a considerable number of wasters, thrown out unfinished owing to breakage in boring the holes, or for bad colour or other defects, proves that these beads were manufactured locally; there is no question of their importation from Sumer or elsewhere.

Beads of Type II are much less frequently found. To the two from Taxila (pl. I, nos. 2 and 7), one of early date from Ur, and a number of unknown provenance and date from Syria, mentioned by Beck, can now be added: one each from Harappa and Mohenjo-daro, and four from Chanhu-daro. These four are all broken specimens and probably of local manufacture. Nor is Chanhu-daro alone in being an established source in India of etched carnelian beads. Beck figures three of these beads from Bhagalpur in Bihar (*Antiquaries Journal*, 1933, op. cit. pl. LXVII, fig. 4), which though otherwise finished were never perforated, pointing to the existence of a bead factory at that site. These latter beads bear a marked resemblance to etched beads from Taxila, and may perhaps be contemporary. Though we learn nothing from the Report of there being any trace of a bead factory at Taxila, that is not to prove that there never was one in so large a city. The same may be said of both Harappa and Mohenjo-daro, where extensive mounds remain untouched and may one day yield precious information to the excavator. In beads of Type II the whole of the surface is whitened in the manner of the white designs of Type I. In his report on the beads from Taxila, Beck seems to have been uncertain of the method of producing the black lines of Type II, but later, in a personal communication (v. *Chanhu-daro Excavations*, 1935–1936, p. 200), he wrote: 'I have succeeded in making the black lines on whitened carnelians and agates. I have used copper, cobalt, and manganese, but have failed with lead and only got a very pale effect with iron. The cobalt is the easiest, but I think that the copper gives the closest resemblance. Manganese, unless very thickly done, has a rather purple appearance'. But on one of the beads from Chanhu-daro the black lines have a definitely purplish tint.

Of Type III, to the one from Taxila (pl. I, no. 1), which is dated to the first century A.D., there must now be added a bead of similar technique from Harappa of a date some two and a half millennia earlier.

In an interesting section on cemented eye beads, the method of grinding flats on the original bead and cementing patches of contrasting material, or another colour of the same upon them, is described. Beck mentions the occurrence at Susa at a much earlier date of a chalcedony backplate for a cemented eye, but the difference in date being over two thousand years he suggests that the same kind of bead may possibly have been reinvented. Cemented beads were, however, already made in India at the earlier date;

at Mohenjo-daro a striped barrel-shaped bead was found in its five component segments, of carnelian and white chalcedony, in a copper canister with other beads and ornaments. The segments had been carefully ground to fit and then cemented together.

Agate beads form a large portion of the selected beads from Taxila. The shape described as ' leech beads ' (pl. III, nos. 1–6) extended over a considerable period of time from the sixth century B.C. onwards. Beck points out that they resemble in shape the leech beads of other materials than agate mounted on fibulae in Europe during the eighth to the sixth centuries B.C. It might be added that the shape goes even further back. Leech-shaped beads in onyx are known from the Twelfth Dynasty of Egypt (Edwards Collection, University College, London), and from Babylon (Koldewy, *Excavations at Babylon*, p. 263, fig. 185), and others from Kish and Ur.

Very few beads of faience are known from Taxila. Of one of them, a very rough gadrooned bead glazed blue (p. x, no. 7) from the Dharmarājikā Stūpa, Beck says : ' This bead is dated from its findspot as between the first and fifth century A.D., and is quite indistinguishable from similar beads from Persia referable to the 14th century A.D.'—another of the hurdles that the student of the history of beads has to take.

The great amount of work quietly done by Mr Beck has placed the study of ancient beads of the East on a firm footing.* There is an immensity of comparative work still to be done, not least among the hoards of beads that make such colourful and attractive, but unscientific, shows in many of our museums. More will be added after the war, when excavations will no doubt be resumed, and it is to be hoped that among the new generation of archaeologists Mr Beck's sound and scientific foundations will be appreciated and put to good use.

It seems perhaps invidious to criticize so useful and interesting a publication, but a considerable number of printer's errors have been allowed to pass ; they must inevitably occur in more than usual profusion when the compositor sets up type in a language not his own. For example, in the upper half of p. 9 nos. 30 and 22 should be 31 and 23 respectively, and three plate numbers are incorrectly stated on p. 27. Words have even been transposed : ' an eye bead with plain spot eyes on an ultramarine ash ground ' is shown in pl. I, no. 13, to have blue eyes on an ash-coloured ground. And it is unfortunate that in the footnotes acknowledgments due to collaborators in the writing of *Mohenjo-daro and the Indus Civilization* should have been dropped out, though pages in the chapters that they contributed to that work are mentioned. The coloured plate, an early attempt by the Government of India Press, needs more realistic colouring ; no. 5 barely suggests carnelian, and of the brown chevron on no. 2 it is stated in the text that ' the black is intense and almost looks like an enamel '. No. 26 is also described (p. 31) as a *black* bead with red stripes.

It might be added that a plan to show the positions of the various mounds—Bhir, Sirkap, Dharmarājikā Stūpa, Jandiāl, Mohrā Morādu, etc., and a brief outline of their historical relationships, added as an appendix, would have helped those who have been unable to visit this extensive and most interesting site.

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* His *Notes on Glazed Stones* (Part I.—Glazed Steatite ; Part II.—Glazed Quartz ; Part III.—Carnelian, Agate, and Felspar), published in *Ancient Egypt and the East*, December 1934, and June 1935, are a particularly valuable contribution to the study of ancient beads and other objects of made stone.

Notes and News

MUSEUMS (*see* ANTIQUITY, March 1944, pp. 42–9)

Mr W. F. Grimes has clearly stated the case for a new policy on Museums, and it is to be hoped that the planners of our ' new world ' will not overlook this item, the social importance of which has for so long been under-estimated. It is unfortunate that space is not available for him to expand his theme, and if he was so able, I am sure the points raised here would have been covered.

There is a need for several different types of museums with distinct functions, such as :—

National Museums for each convenient historic period, housing all types of material where students and research workers can survey the complete field either by actual specimen or by copy.

National Typographical Museums housing all the specimens of one particular implement, vessel, etc., irrespective of period or provenance, for students and research workers.

Regional Museums based on geographical areas, the history of which could be conveniently displayed, where, by careful selection and display of material and models, etc., the public could easily grasp the main historic developments in relation to the rest of the country. Combined with this could be a depository for material discovered in the area for students and research workers.

Local or Town Museums where the growth and development of the locality or town could be graphically displayed for the public and schoolchildren and space left for travelling displays arranged by the National Museums illustrating one particular subject. These could be continually circulating round the Regional and local museums where they would be on show for a month at a time.

Natural History Museums could be organized very much on the same pattern, but those portraying the local industry or craftsmanship require a greater regional or local concentration where the modern workers could derive pride in their trade or craft. But the great mistake of crowding all these different displays, Historic, Natural History, Scientific and Industrial into one building should be avoided.

Another point omitted by Mr Grimes is the function of the Museum Curator. It is a very regrettable feature of the present system that no place is found for the Archaeologist. Work in the field has now become a highly specialized job and should be quite distinct from that of mending, storing and displaying material in the museum. The Regional and National Museums should employ a staff of field workers trained in the latest archaeological technique, working in close co-operation with the Museum specialists. While their work will overlap at certain points, it is no longer possible for one person to fulfil both functions adequately, if our future excavation reports are to be as full as they should be.

In conclusion, Mr Grimes is to be congratulated on calling attention to these pressing needs; as he so rightly stresses, only very few people are interested in this aspect of post-war planning, but if those few are keen enough and vociferous enough, some attention may be paid to this urgent social need. GRAHAM WEBSTER.

As Mr Webster says, in the space available I could not deal with all the varied questions that arise in connexion with museum organization.

Most people would I think agree that several classes of museums are necessary. But just how many types we should have, or what their functions should be I would not like to try to set out in a short note. The first task of any central organization should be to carry out a survey which would assess needs in relation to both population and subject-interest. Existing museums would no doubt usually fit without difficulty into the resulting scheme, which should be developed as funds and personnel become available.

In formulating such plans common sense is as necessary as idealism. Financial and administrative factors are bound to set a limit on the number of museums. (And there are other cultural activities to be provided for.) I must confess, for instance, that I see no reason why historic, natural history and other subjects should not be combined in one regional or local museum. Most of our largest local museums are ' composite ' museums, and some of them are first-rate. The point is surely that whatever subjects a museum illustrates should be properly organized and exhibited in themselves, with their points of contact brought out wherever possible. In fact, I would put it more strongly and say that in most cases such combinations are positively desirable—and implicit in what I have written on this subject. I would like to see each case considered on its merits without any attempt to establish set rules beforehand.

When Mr Webster talks of national museums ' for each convenient period ' it seems to me that much must depend on what he means by ' periods '. It is a self-evident truth that history is a continuous process ; and the whole trend of research is to show how complicated and interlocked our ' periods ' are. My own view, for what it is worth, is that we need a National Museum of British Antiquities—or whatever the suitable title might be—carved out of the present British Museum, to include the necessary comparative European material. (The other divisions and re-arrangements of the British Museum which I, and I believe other people, would like to see need not concern me here). There should be a national folk collection ; and industrial and scientific developments would continue to be dealt with by the Science Museum as at present, with the Victoria and Albert as our chief art museum. The last two must in the nature of things cover a wider field. In the case of the historical collections a certain degree of artificiality in the divisions will be unavoidable and there would obviously be some overlapping. But if this is what Mr Webster means by convenient periods I should agree with him.

The addition of specialized museums or collections to this nucleus might well be necessary. But I don't like the sound of typographical museums. Typographical series must be built up and studied within a cultural framework if they are to have real meaning. We can't set the specimen back in isolation on its pedestal again.

In my original article I could say practically nothing about museums and research. It is a very wide subject, involving not merely the functions of the museum itself, but also the training, qualifications and status of the museum-curator. Again I would urge that we should not allow our activities to be split up into separate compartments. We don't want our museums to continue to overcrowd their cases in a way which confuses the needs of the lay public with those of the research-worker and specialist. So too the day of the museum-curator who is only a research-worker is at an end ; his true place is in some kind of research-organization.

But it would be unwise, and bad for museum and public alike, to deny the museum-curator opportunities for field-work, including excavation. Surely one of the great weaknesses of the present museum position is the absence of outdoor contacts with a subject the whole essence of which is out-of-doors. It is true, as Mr Webster says, that

Fig. I

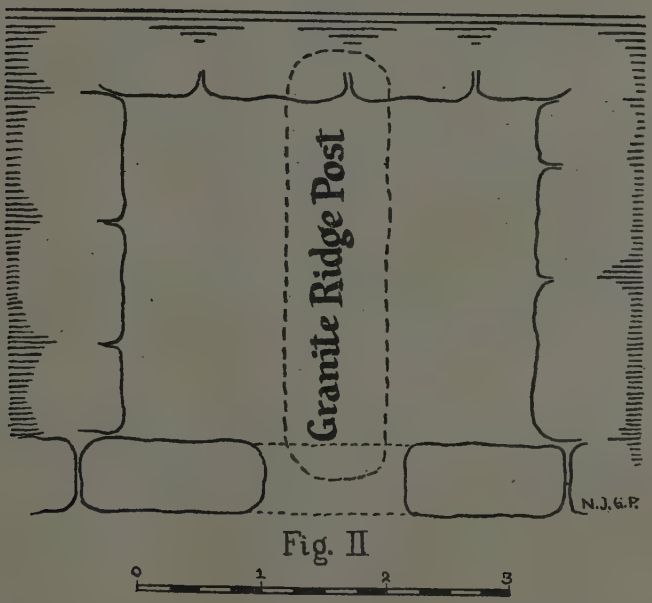

Fig. II

GOOSE-HOUSE AT LITTLEJOHNS, NEAR ST. AUSTELL (*see* p. 208)
(i) cross-section. (ii) ground plan

field-work is a specialized job ; but the curator should know something about it and take his share in it, just as any excavator worthy of the name should know something —and the more the better—of the treatment and care of the material which ultimately becomes museum specimens. (To my mind one of the great dangers that confronts us is this excessive specialization. I may be wrong, but there seems to be a growth in the number of people who can apparently excavate with only the vaguest understanding of what they find, or of how to deal with it once found ; sometimes even with little grasp of the general problems of the period to which their site belongs.)

It seems to me that here too the difference is not in kind, but in degree. The museum-curator must be first of all a museum-man. He can't therefore tackle large-scale excavations involving him in prolonged absences from his museum or in long periods of work on their results. But there is field—and excavation—work of a more limited kind, on small sites or specific problems, that he can and should do, as in some places he already does. How bigger undertakings should be dealt with is a question that belongs in the first place to the wider field of archaeological organization, involving as it does such important questions as the sums of money available for archaeological research and the sources from which they are derived. W. F. GRIMES.

GOOSE-HOUSES (PLATE)

At Littlejohns, on the north-western flank of Hensbarrow in mid-Cornwall, is a small group of three ancient goose-houses. One has been largely destroyed with the removal of a Cornish ' hedge ' in which it was built. The rest are intact. Both are built into a granite hedge,* which consists of a double wall of granite or ' moorstone ' boulders, with a filling of earth. The hedges are themselves probably of a very considerable age, though it is possible that the goose-houses were let into a hedge already built.

The larger of the two is at the side of the narrow lane leading to the small upland croft of Littlejohns. The entrance, 14 inches by 20, is built of two granite side-posts, with a lintel. The compartment within is walled with small granite blocks, and measures 2 feet 10 inches deep and 3 feet 3 inches wide. The roof consists of a single transverse monolith, on which are laid granite slabs, thus forming a ridge roof of very gentle slope. The whole has been earthed over to a depth of at least a foot. The wall is thickened on its inner side by the addition of a bank of earth to contain the compartment. The floor is of beaten earth. The side-posts have plug-holes, so that a door was probably hung.

The second is smaller, only 24 inches by 20 in ground plan, but is in all respects similar. It lies in the corner of a small paddock of some 30 feet by 24. The granite posts alone remain of the third. I was told that there is another and similar goose-house in the upland parish of St. Wenn, to the north. Others have been observed in the Land's End district, usually contrived in a thickened hedge, and roofed with granite slabs. They have occasionally been found excavated in soft, decomposed granite, and even in the crumbling rubble drift of the ' head '.

It may not be too fanciful to link these humble structures with the prehistoric passage-graves and fogous of West Cornwall, which they resemble, somewhat in plan and construction. N. J. G. POUNDS.

* See O. G. S. Crawford, on ' The Work of Giants ', ANTIQUITY, X, 162–74.

GOOSE-HOUSE AT CARNA-QUIDDEN, CORNWALL
Ph. O. G. S. Crawford

facing p. 208

Reviews

THE EXCAVATION OF TELL BEIT MIRSIM: vol. III, The Iron Age. *By* WILLIAM FOXWELL ALBRIGHT, with a chapter by JAMES LEON KELSO and J. PALIN THORLEY. (Annual of the American Schools of Oriental Research, vols. XXI–XXII for 1941–1943). *Newhaven*, 1943. *pp.* XXVI, 229 *with* 73 *plates and* 5 *text-figures.*

This volume concludes for the present the publication of the results of four campaigns at Tell Beit Mirsim, a small Palestinian site in the hilly country southwest of Hebron. A volume published in 1938 contained an account of the lower strata C–J which dated, roughly, from *c.* 2500 B.C. to *c.* 1250; this book, which deals with the two upper strata A and B, carries the story down to the fall of the Jewish kingdom in 589.

Tell Beit Mirsim lay on the easiest road from Beersheba to Lachish, Maresha and Bethshemesh; it is about 8 miles south of Tell Duweir–Lachish. It may be the site of the biblical Kirjathsepher but it was never a place of much wealth or importance and the area inside the walls only measured about 7½ acres. Albright's first season in 1926 gave a glimpse of the antiquity of the town; it showed also that the different strata were comparatively well defined and that the site had not been occupied in the Hellenistic or later periods. It is these facts which have led him to return in three subsequent seasons and to contemplate further work in the future. Two sections of the walled area, one in the northwest, the other in the southeast, have now been excavated; together they amount to about two-fifths of the whole. With a self-restraint which is as rare as it is commendable the excavators have resisted the lure of tomb hunting and no objects of spectacular value as museum pieces have fallen to their lot, but they have obtained fresh light on the ups and downs of a small town over a long period and a graphic picture of conditions there in the final stage of its history.

The period of stratum B, the lower of the two described in this book, runs from the latter half of the 13th century B.C., the time of Joshua, to the end of the 10th in the reign of Rehoboam. At Tell Beit Mirsim this was a poor period of 'rustic simplicity'; for the first two hundred years or so the town was not walled, the houses were few and the population in all probability did not exceed one thousand; in the plan of the southeast section, the only one of this stratum which is published, there are more grain-pits than dwellings. Some grain-pits are obviously older than others and it is mainly by means of potsherds from the grain-pits that the excavators have succeeded in distinguishing three phases in this stratum. The destruction of stratum C at the end of the Late Bronze Age Albright connects with the arrival of the Israelites, and the pottery of the first phase of the next stratum, B1, is close to that of the Late Bronze. The second phase, B2, is marked by the presence of Philistine wares; Philistine influence was dominant in this part of Palestine from about the middle of the 12th century B.C. until the reign of David in the beginning of the 10th. Philistine wares disappear in the last phase, B3, when the town was again fortified. The new town wall was a casemate wall like that at Bethshemesh, and Albright suggests that both may have been built under the same supervision in the early years of David *c.* 1000–990 B.C. This type of wall he believes to have come originally into north Syria with the Hittites in the 14th century; the earliest Palestinian examples quoted are at Shechem and Gibeah (Tell el Ful), both perhaps of the 11th century; the finest is the 9th century wall of the acropolis at Samaria. Albright states dogmatically that this wall is 'to be dated not before Jehu and not after Jeroboam II, i.e. between 840 and 750 B.C.' (p. 15). The last Samaria expedition

assigned it to the time of Ahab 870–850. Compared with the 9th century wall the masonry at Tell Beit Mirsim is rude and primitive.

The stratum B town was destroyed towards the end of the 10th century and ' we are entirely justified in attributing its fall to the invasion of Shishak ', *c.* 918 B.C. (p. 38). The town was slow in recovering and though sections of the old wall survived, the houses in stratum A are set out on wholly new lines ; the break between B and A seems to be complete. The stratum A town lasted for about three centuries down to the second expedition sent by Nebuchadnezzar in 589. Like its great neighbour Lachish, it may have suffered during the invasion of Sennacherib in 701 and this date may be taken as the dividing line between two phases in the period, A1 and A2, but we are disappointed to find that no serious attempt is made in this volume to trace any sharp distinctions in culture before and after this moment. The whole period is one of extraordinary interest ; Tell Beit Mirsim appears to have touched the zenith of its prosperity in the 8th century during the lifetime of Amos, but it was still a busy little town in the time of Jeremiah round about 600. Albright's excavations have given a graphic picture of the real progress made under the Jewish monarchy, a picture in bright contrast with the chaotic conditions in the dim ages of Joshua and Samuel.

The population now rose to a figure put by Albright between 2500 and 3000 and overflowed the town walls. The walls and the gates were reconstructed, the gate in the west quadrant not less than four times. The streets were narrow and irregular like those in a modern Palestinian village, and the houses stood at different angles. Some of the houses had cisterns ; the old grain pits are a thing of the past. Six or seven dyeing plants were found and if the area unexcavated was equally well provided the town must have contained from twenty to forty. Quantities of loom-weights prove that Tell Beit Mirsim, which is surrounded by good grazing country, was also the centre of an active woollen textile industry. Both industries were of long standing in Palestine ; Semites in coats of many colours were depicted in the tombs at Beni Hasan more than a thousand years earlier. The houses vary considerably in plan and complexity ; the lower courses were built of rough stones, the upper ones of unbaked bricks ; flights of steps led to the roof or upper storey ; the roofs were flat and many roof rollers like those still in use were found. The most surprising feature in the domestic architecture is the row of stone pillars, usually three or four in number, which occurs in most of the larger rooms or courts. The pillars, which are roughly rectangular in section, vary from one to two metres in height, the shorter ones having been capped, of course, with smaller blocks, and they were set in a row apparently to form a sort of verandah on one side of the court, the major part of which, about two-thirds as a rule, was left open to the sky. In a few houses the spaces between the pillars have been filled in with masonry and in these cases Albright suggests that the pillars may have served also to support the vertical looms but this seems questionable. At Tell Beit Mirsim the use of pillars was most popular in the 8th century ; they become less frequent towards the end of stratum A, they cannot be traced back into stratum B. Elsewhere earlier examples have been found and Albright derives this type of house from Phoenician sources, themselves under New–Egyptian and Syro-Mesopotamian influences (p. 55).

A valuable study of the potter's technique and pottery types from stratum A has been contributed by two experts in ceramics, Messrs Kelso and Thorley (pp. 86–142). The study is particularly welcome because such merits as these wares possess have received scant recognition hitherto. The pots of this period are not decorated with interesting designs and their shapes have not the immediate appeal of the Middle Bronze fabrics ; moreover they are very common. They were all made, as our authors point out, for

ordinary daily uses and it was because the shapes were so good functionally that they changed so little from age to age. The commonest of all are the red ring-burnished bowls and these have to be handled to be appreciated. The form of these bowls is good with plenty of subtleties, when the bowl itself instead of a photograph or drawing is studied. These bowls have a nicety of line which the Greeks modified into their mathematically perfect form. The Palestinian bowls, however, have a spontaneity of form and a vitality that is more Chinese than Greek in its effect. Within this general class of ring-burnished bowls there is a good variety of minor shapes and none strikes one as ugly (p. 131). There is some hasty and careless work but the general standard of throwing, firing and burnishing, is high even in a small place like Tell Beit Mirsim. Both in buildings and pottery stratum A, the period of the divided kingdoms, reveals a much higher cultural level than stratum B, a level highest perhaps when the two kingdoms were at peace with one another; the prophetic movement was, in Marxian language, the antithesis of this advance.

Albright is warmly to be congratulated on the completion of a task for which he was singularly qualified. He is at home in all the scripts and languages concerned—Hebraic, Cuneiform and Egyptian; he has specialized for years in Palestinian ceramics and knows more probably than anyone living about recent excavations in the country; in several he has taken the leading part. It is interesting to see how closely his conclusions tally with a reasonable interpretation of the literary tradition. But perhaps it would be kind to warn the general reader that he is an austere writer, swept along by an enthusiasm which others may not share; such may often find it hard to see the wood for the trees. And we have one criticism; we are ready to endorse the tribute he pays to the accuracy of his surveyor, William Gad, but we submit that a mere survey is not enough to give an adequate picture of the architectural remains, houses and gates in particular, and that the multitude of levels with which the plans are peppered makes for confusion rather than understanding. We would gladly have sacrificed some of the many photographs for more drawings in the text; the few figures which are included add too little in the way of elucidation. J. W. CROWFOOT.

THE PLACE-NAMES OF CAMBRIDGESHIRE AND THE ISLE OF ELY. *By* P. H. REANEY, under the General Editorship of A. MAWER *and* F. M. STENTON. English Place-name Society, vol. XIX. *Cambridge University Press*, 1943. *pp.* LXI, 396 *with* 3 *maps.* 23*s* 6*d.*

In spite of present conditions and the consequent inaccessibility of many documents the Cambridgeshire volume of the English Place-name Society fully maintains the high standard which we have come to take for granted. Dr Reaney's industry and skill are obvious, but such scope and completeness are possible only by the co-operative methods inspired by Sir Allen Mawer, whose sudden death has robbed the nation of one of its leading scholars. As in previous volumes there are the thousands of spellings, faultlessly marshalled and competently discussed, and there is the lucid introduction which outlines the historical significance of the material. If in this volume the introduction is rather longer than usual, the layman will be grateful for every additional sentence of expert guidance.

Readers of ANTIQUITY will no doubt be interested primarily in the historical conclusions to be drawn from the material examined. In the first place, as Dr Reaney points out, the evidence for the survival of Britons in Cambridgeshire is negligible. Apart from river-names, there are only two or three examples of Celtic influence (Chatteris, Crossfield and perhaps Chettisham), and these are hybrid formations. Indeed, viewed

strictly, they are English place-names which happen to preserve fragments of British speech. Where Britons survived in any number we might legitimately expect to find one or two strictly Celtic compound place-names or at least a few Celtic personal names and habitative elements. Hybrids of the Chatteris and Crossfield type are hardly more significant than Celtic river-names ; they refer only to prominent topographical features —poor evidence for survival and no evidence for either racial fusion or continuity of occupation.

Archaeology has abundantly proved early English settlement in the Cambridge region, and it is therefore surprising to find no certain examples of the *folc* names which end in *ingas* and which presumably arose in the first phase of the settlement. There are, however, a number of place-names (cf. p. 303) which preserve the memory of primitive groups : for example, Badlingham, ' the *ham* of the *Bæddelingas* ', clearly arose before the *Bæddelingas* had ceased to have a separate existence. Dr Reaney goes further and, in a valuable paragraph (p. xviii), he puts forward other tests of early settlement, concluding that ' the place-names of Cambridgeshire, as a series, fully agree with the indications of an early settlement provided by the archaeological materials discovered within the county '.

Major place-names have been but faintly affected by the Scandinavians. Of the parish names only Bourn and Toft are true Scandinavian place-names ; there are no *bys* and not even a single example of a strict Scandinavian compound formation. Caxton and Croxton are hybrids of a kind which is common only on the fringes of the main settlement areas and which, regarded as a type, seems to be of somewhat later creation than the majority of the *bys*. Conington and Carlton may be hybrids but it is perhaps more likely that they represent the Scandinavianization of OE. *Cyningtun* and OE. *Ceorlatun* respectively. This unobtrusive Scandinavian element agrees well with the historical evidence, for although Cambridge sheltered a Danish Army for a time yet the area was recovered by Edward the Elder with comparative ease. A temporary military occupation rather than an intensive settlement is indicated.

But minor names, as is often the case, supplement the evidence of major names. Scandinavian elements like *bekkr*, *gata*, *haugr*, *strengr*, *vangr* and the common *holmr* abound, and personal names like *Asmundr*, *Klyppr*, *Tóki* and *Gunnhildr* are found. Clearly Scandinavians settled in Cambridgeshire in sufficient numbers to influence appreciably the names ultimately given to the minor topographical features. In connexion with the minor name material one might plead for the restoration of the lists of personal names appearing in field-names. These lists, discontinued after vol. xi, greatly eased the burden of the student of personal names. One might suggest, also, that the minor names printed on pp. 311–57 (Lists, *a*, *b* and *c*) should have the usual details of locality and source added to the date which alone is given. Lack of these data leaves one guessing at several points without hope or possibility of certainty, e.g. is *Pichenemere* (p. 339 *sub* mere) the same place as *Pichennemore* (*sub* mor) ?

A reviewer, some years ago, urged upon Place-name Society editors ' some restraint in attempts at explaining names to whose meaning there is no safe clue '. This advice was quite unnecessary. Scholarly caution is revealed on every page of the present volume. Many names are obscure and are likely to remain obscure unless fresh material is discovered. Instead of offering solutions Dr Reaney frequently reviews the difficulties and possibilities of names in learned but clear expositions which greatly enhance the value of the work.

Considerations of space prevent a more detailed survey of this most important volume. Archaeologists will find the usual interesting references to earthworks, barrows,

folk meeting places etc. In particular there is an abundance of material relating to the ancient road and river systems of Cambridgeshire. No-one interested in England's remote past can afford not to subscribe to the English Place-name Society. The minimum annual subscription is 15s., which is no less amazing than the unvarying excellence of the volumes which it secures. F. T. WAINWRIGHT.

GOTLANDS BILDSTEINE (2 vols.). *By* SUNE LINDQVIST. In German. *Stockholm, Kungl. Vitterhets Historie und Antikvitetens Akademie* (Wahlström & Widstrand), 1941 and 1942. *pp.* 151, *and* 148, *and* 611 *plates and text-figures.* 35 *kroner each.*

These handsome volumes, edited by Professor Lindqvist, are as he acknowledges a tribute to what amounts to the lifework of three of the last generation of Swedish archaeologists, Gabriel Gustafson, Fredrik Nordin and Olof Sörling. These three workers set themselves to investigate and record all the known monumental stones in the island of Gotland between the 5th and 12th centuries. They planned to produce an inventory of these monuments, but were never permitted to see the full realization of their project. Lindqvist has done full justice to their labours, for not only has he carefully re-examined the whole mass of material they left behind them, but also, availing himself of the great advances which in recent years have been made in scientific photography, has supplemented Sörling's careful drawings and the squeezes upon which earlier workers relied in carrying out their task by many brilliant photographs taken by Dr Faith-Ell, and here reproduced in excellent collotype plates. The results are wholly admirable.

The second volume is devoted to a detailed inventory of all the monuments known up to the time of publication, Many more, it is expected, still have to be discovered, either re-used in the building of Christian churches or to be unearthed on sites of ancient burying-grounds. One such discovery actually came to light in time to be added as a supplement.

In the first volume Lindqvist has subjected the whole material to a closely critical study which serves admirably to illustrate the progress which the last forty years have brought to archaeological research. For he has found himself compelled to break away to some extent from the purely typological methods by which earlier archaeological investigators were governed, realizing that these tended to lead to rather narrow deductions in matters of evolution of form and chronological sequence, omitting due consideration of the recurrent impulses of human initiative under the influences of external connections. Here he has unquestionably benefited by the scholarly labours on the general archaeology of the island which have appeared in other monographs of this same series from the pens of Almgren, Nerman and others.

In the result he has been able to distinguish five periods :

A, 5th century. Large stones, finely shaped and decorated with well designed borders ; the cutting is very shallow, no more than 1 millimetre in depth. One can thus fully recognize from some of the modern photographs how arduous must have been their decipherment. Their decorative motifs point to the powerful influences from the Roman world that are only to be expected in view of the many contacts with the south and west that find confirmation in the wealth of gold *aurei*, in the gold bracteates, jewellery and other products of northern art during this period. With these orthostats can be ranged others which have formed the surrounds of the grave, and in addition certain pieces curiously reminiscent of curling-stones which are thought to have been placed at the foot of the orthostat, the lower half of which was normally left undecorated, and

finally so-called ' dwarf-stones ', which may be those erected by the humbler folk. The decoration as a whole is geometric or is derived from plant-motifs ; pictorial art is rare.

B, 6th and most of the 7th century. Everything is on a smaller scale ; decoration is stiffer, but at the same time corresponds to the general evolution of an independent northern style. Pictorial art becomes more common with ships, human figures and animals.

C, there follows a second period of large stones clearly connected by their form with those of the preceding period, decorated overall with elaborate designs of ships, battles and other subjects, distinguishable from those of period B owing to the impressive development of their decoration. They appear to represent a return of well-being commencing about 700.

D. Evidently a long period extending from *c.* 750 to the 11th century. Unfortunately the number of stones by which it can be judged is small. Though in general character they do not diverge widely from those of the C-group, the decoration is often confused and lacks the masterly balance of the C-group ; their execution altogether produces a clumsier impression, in some cases the work of localized artists.

E. Here we pass as it were into a different artistic world. The form of the stones changes but little, but the decoration swings away into the formalized rune-stone style, often very strikingly carved, until finally the presence of a cross between long curving borders with runic inscriptions marks the passing of the pagan period. Only in a few cases is some survival of the pictorial representation of the preceding centuries present. This group is considered to cover the 11th century.

One point of great importance has emerged from the study of these monuments. It seems quite clear that the very low and flat relief in which they were cut is to be explained by the fact that they were intended to be coloured, and indeed there is some actual evidence of paint. It would certainly be in consonance with the kind of peasant art which has always been a feature of northern culture.

A particularly interesting section of Lindqvist's dissertation attempts to interpret the scenes which distinguish the work of periods C and D and their relations to the beliefs and life of the people by whom they were erected ; in one instance at least it would appear that the scenes are so arranged as to afford to the spectator a first-hand account of the episodes which successively led up to the dead man's appearance in Valhalla.

He also draws some attractive inferences in regard to the economic conditions of the Gotlanders at the different periods to which these monuments belong. In his approach to all the problems Professor Lindqvist exhibits a pleasing restraint and freedom from dogmatism, realizing that some modification of his conclusions may be needed in the future, for example after an expert study has been made of the runic inscriptions.

Nothing but praise can be accorded to the excellent presentation of the whole subject, which once more attests the wealth of material that serves to illustrate Gotland's civilization during the centuries in question. Both printing and illustrations are fully up to the high standard of the excellent publications which have appeared in this same series. E. T. LEEDS.

HANDBOOK OF LATIN AMERICAN STUDIES, 1941, No. 7. Edited for the Joint Committee on Latin American Studies, *by* MIRON BURGIN. *Harvard University Press* (*Milford*). *pp.* xv, 649. *22s 6d.*

The seventh issue of this most valuable Handbook needs no introduction to students of Latin America, and to others it will suffice to quote from the book itself that it

' endeavours to record, with informative and evaluative notes on significant items, the most important publications of the preceding year '. It covers a wide variety of subjects, of which Anthropology, History, Archives and possibly Folklore, will be of interest to readers of this Journal. In each section, a general statement summarizing the year's work is followed by a list of publications.

Archaeology is treated as a sub-heading of Anthropology, a position which it shares with Ethnology, a convenient enough arrangement for this area, where the study of modern man has a particularly intimate bearing on the interpretation of archaeological discovery. A list of general works on anthropology is followed by four separate sections on Middle and South American Archaeology and Ethnology respectively, and a fifth on Physical Anthropology. Among the general works is noted an article by Dr Max Uhle, in which stylistic considerations lead him to seek the origins of the ancient civilizations of America in Asia. Uhle had previously gone further than most other authorities could follow him in using similar arguments to prove that the South American civilizations were absolutely dependent on those of Central America, but this fresh development places him among those extreme diffusionists whose views are chiefly of value to Japanese propagandists. In both Middle and South American archaeology the year was one of considerable activity, but there was every indication that there would be little subsequent field work, at least by North Americans, before the end of the war. The outstanding event, in both fields, was the carrying out of ten projects by the Institute of Andean Research, involving expeditions to many Latin American countries. None of the results were published during 1941, but several have appeared since. The most notable publication dealing with Middle America was Prof. A. M. Tozzer's edition of Diego de Landa's ' Relacion de las Cosas de Yucatan '. In South America, the appearance of Rafael Larco Hoyle's ' Los Cupisniques ' gives details about the Coastal Chavin culture of Peru, which have long been eagerly awaited.

In Ethnology, there was a decline in publications dealing with Middle America, due not so much to the war as to the fact that the most important material was in course of preparation. The section dealing with South America is notable chiefly for the useful general statement by A. Metraux, in which he stresses the inadequacy of past work, and summarizes the areas and tribes which should receive early attention if valuable information is not to be lost for ever.

In the realm of Physical Anthropology, the chief events of interest to archaeologists have been two expeditions to Peru by North American scientists, which have resulted in studies, not yet published, of Cupisnique and Mochica skeletons, and of cranial series covering the entire succession of cultures in the central Coast.

History is dealt with under the heading of the Colonial, Revolutionary and National Periods. The war did little to diminish the flow of publications from American sources in this field during the year, except in Brazil, and it is suggested that the threat to national security may even have stimulated work on the Revolutionary Period.

As regards the care and study of archives, the year was one of unspectacular but steady progress. There seems to be evidence of increased interest in them in most countries, and it is to be hoped that this will eventually overcome the chronic shortage of funds which hampers progress in this field. It is satisfactory to learn that there has been a ' marked degree of stability in the personnel ' during the past few years, in contrast with the state of affairs which prevails in so many departments connected in any way with Latin American governments.

The section dealing with Folklore reveals a vast amount of activity, which is considered to be symptomatic of an increased interest in Indian culture. Whether this

activity is based altogether on sound learning is not so clear, in fact the example cited below suggests that the editor of the section has approached his task in a somewhat uncritical spirit. His general statement opens with high praise of the revived ' Sociedad Geográfica de La Paz ' in Bolivia, under the presidency of Posnansky, whose pronouncements on the subject of Tiahuanaco most archaeologists take with more than a grain of salt. It is interesting to turn to the list of publications in South American Ethnology, where we find that the same Posnansky has published two articles in the ' Boletin ' of the society in question, in which he divides the Bolivian Indians into two races, the proud Kholla conquerors, the South American equivalents of the chosen Nordic race, and the dumb and inferior Arawak, the herd people who needed a Führer (*sic*) !

G. H. S. Bushnell.

STENÅLDERS BOPLATSEN VID VIVASTEMÅLA, VÄSTRUMS SOCKEN, SMÅLAND. (Stone Age dwelling places at Vivastemåla). *By* Axel Bagge. *K. Vitterhets, Hist. och Antikvitets Akad. Handlingar* 57, 7. *pp.* 58. *Stockholm*, 1941. 4 *kroner.*

This typical fishing and sealing settlement of the East Swedish dwelling place culture would seem at first sight important only as filling up a gap in the distribution of sites between south and central Sweden. Really, however, several novel points have emerged from Bagge's careful investigations. In the first place he noted a curious discrepancy in the distribution of sherds and of stone implements plotted against heights above sea level. Most sherds per square metre were found more than 18 m. above sea level while the greatest density of stone artifacts and fragments of such came between the 17 and 16 m. contours. Moreover some of the few sherds from the lower-lying localities show traces of rolling. These phenomena could be explained by a marine transgression at the end of the site's occupation which would have washed away the lighter materials within its range. Here then Bagge sees further evidence for the marine transgression in the Passage Grave period for which much evidence has been recently collected in Sweden and Denmark.

Secondly while the immense bulk of the pottery and other artifacts belong to the usual East Swedish dwelling place culture—the pottery being typical pit ornamented ware of the ' Säter III ' style, a few sherds of different quality, with cord ornament, were discovered. Regular settlements of farming folk using corded ware have in recent years been brought to light in East Central Sweden as earlier in the south and west of the Peninsula. Bagge suggests that the sherds from Vivastemåla were imports from a colony of such farmers who would naturally select an environment more suitable for agriculture than the narrow strands preferred by hunters and fishers as at this site.

Now another disconcerting find comes from Vivastemåla—a primitive saddle quern. No indication of either the cultivation of cereals or stock-breeding had been found previously on any site of the makers of pit ornamented pottery in Scandinavia any more than in those of their kin east of the Baltic. A grain rubber does not of course in itself prove agriculture. The author envisages the possibility that the quern was used for grinding corn imported from the same hypothetical settlement as provided the cord ornamented sherds. The phosphate content of the soil on the site was very high. That is the rule on settlements of the fishers and seal-hunters whereas on settlements of farmers the phosphate content is lower.

One other novel feature was brought to light by the excavation—the base of the pit used in place of a kiln for firing the typical pit ornamented ware. It was a shallow oval depression full of burnt sand and a few overfired potsherds with a slightly narrower

and shallower extension in which ashes were found. Of course any superstructure had been destroyed together with the original surface soil that has been ploughed in recent times.

This concise monograph, which is accompanied by a very full summary in German, is another useful contribution to elucidating the cultural relations in Scandinavia during the later Stone Age—relations which can today be seen to have been far more complicated than had formerly been supposed. V. G. CHILDE.

GULDBRAKTEATERNA FRÅN NORDENS FOLKSVANDRINGSTID. *By* HERJE ÖBERG. *Stockholm, Kungl. Vitterhets Historie och Antikvitetens Akademiens Handlingar*, Del 53, 1942. *pp.* 309 *and* 168 *figs.* 12 *kroner.*

Amid the amazing expressions of the goldsmith's art which Scandinavia, stimulated by an enormous influx of gold, produced between the late 4th and mid-5th centuries, perhaps the most interesting is the bracteates, the pendent uniface medallions. Owing to their great variety they have been repeatedly studied by Montelius, Salin, Neergaard and others from various aspects, typological, stylistic and cultural, with the aim of establishing their relation to other products of the period and of fixing their absolute chronology.

The work under review is a further contribution to the already extensive literature on the subject and is clearly the outcome of long and patient study. It adheres to Montelius' classification of A, B, C and D, but combines with it Salin's more particularized grouping, here expanded and sometimes modified. The object is not always obvious or convincing where a group is created for two or three specimens, bearing some minor pecularity of style or presentation. Archaeology nowadays tends rather to be overloaded with ' little masters '. Nevertheless the conclusions of the author deserve the fullest consideration, and it will be an important work of reference for the future, if alone for the valuable catalogue. I have noted one omission. The Nebenstedt hoard (*Ztschr. d. hist. Vereins für Niedersachsen*, 1860, p. 391) included besides those re-listed 3 B1 bracteates as Janse, fig. 64 and also 4 D bracteates almost identical with that from Nörre Hvam (fig. 108). One of each type has been identified in two bracteates acquired by Sir John Evans in Paris in 1866 and now in the Ashmolean Museum.

The book would have suffered no detraction and would undoubtedly have been shortened if the author had adopted a more impersonal style. To say the least of it, the constant repetition of such phrases as ' in my opinion ' becomes rather irritating. If the argument is sound, it will stand by itself and needs no such buttresses.

It is evident that the theme is approached with a natural, but marked Swedish bias, and the result is that the expansion only applies to classes C and D in which alone Sweden makes any great showing ; she is curiously weak in examples of A and that despite the fact that she was the greatest recipient of the gold-stream ; the B class is only represented by one specimen and that undoubtedly Danish in origin.

The C bracteates are approached from a fresh angle in that they are treated in the inverse order to that hitherto adopted. Those with the rider's head resting directly on the animal's back introduce the list, the addition of the neck coming second and those with a body last. The reason offered is that stylistically and in point of size the south Swedish group takes first place and that this group of bracteates in time equates with the copies of medallion obverses (A class) in Denmark. That is to say that so far as the C type is concerned, Sweden was the giver. This has much to say for itself, because on general grounds it is evident that there was a close relationship during the 5th century between south Sweden and the Danish islands, as distinct from Jutland, in which latter

area the C bracteates are sparsely represented ; they seem in all cases to be imports from the islands or even Sweden (fig. 25 from Lyngby).

The survey of the D class shows a gradual stylization from a quasi-natural animal to a schematic form which by a process of enlacement is skilfully adapted to the circular surface it has to fill. Here too in a large measure Sweden may perhaps claim to have inspired the type as a whole, but Norway and Denmark in course of time developed variants peculiar to themselves, in the latter country especially Jutland.

In the B class the author is hardly so successful, for it appears impossible to separate pieces like those from Söderby and Sletner assigned to B II from their prototypes in BI, e.g. the three found in the vicinity of Odense ; they differ essentially from the Swedish group at the head of B II.

The tendency of Scandinavian archaeology in recent years is to throw back the date of the emission of the latest bracteates by some 50 years to the middle of the 5th century. This tendency has a special interest for students of the period in England, because the small group of bracteates from Anglo-Saxon graves, mostly of Danish origin (chiefly from Jutland) must be regarded as having been in possession of their owners before the middle of the century. In that case it may even follow that the Scandinavian bracteates may have to fall back even farther in time, since the English group contains examples which are even more degenerate than the stylistically latest specimen from Jutland.

After studying this work the writer would like to suggest that the three northern countries might usefully combine to produce a corpus of illustrations of these fascinating amulets, ornaments, or whatever one may call them. Constant reference to the old works such as the *Atlas for nordisk Oldkyndighed*, Montelius' *Från Jernålderen* and a host of other publications, some of them often difficult of access to the outside world, is tedious. The form this should take is a problem in itself. Drawing, however admirable as much of that in the older works certainly is, perhaps does not quite satisfy the modern demand for absolute accuracy. That photography can do so is certain—the writer has some magnificent photographs from the Museum at Copenhagen—but only the very best will suffice. In the volume under review examples like figs. 28, 38 and 49 which have been selected as leading illustrations of the group to which they are assigned are almost indecipherable ; fig. 47 is completely so. E. T. LEEDS.

PUEBLO INDIAN EMBROIDERY. (Memoirs of the Laboratory of Anthropology. Vol. IV, Santa Fé, New Mexico). *By* H. P. MERA. *pp.* 73, 26 *plates, and one text-figure.*

This monograph was planned in order that another southwestern American craft, Pueblo Indian Embroidery, ' may take its place beside those of pottery making, weaving and metalwork '. The rarity of examples made the project difficult, but after intensive search nearly 100 examples made previously to 1880 have been located in museums or private hands. Specimens from these, together with earlier ' prehistoric ' textiles and later ' revival ' pieces for comparison are shown in 26 full plates. Three of these, two ' mantas ' and a shirt, are in colour, the latter being peculiarly beautiful in tone and texture, cleverly thrown up by the clear background. The embroidery designs, 50 of them, chosen to show all known types, are drawn in black and white by the author, each provided with a colour key ; the treatment is excellent for the purpose, being especially effective for the simpler, stronger, patterns such as those from Acoma (pl. 6).

After discussion of the evidence now available the author considers that ' with the exception of a scant number of European elements of late introduction the embroideries

can be considered an exemplification of a true aboriginal American art '. Pre-Columbian patterned textiles newly discovered and the descriptions given by the early Spanish explorers of patterned Pueblo garments seen on their arrival, all go to support this view as well as the remarkable fact that after the lapse of centuries from which no examples have survived, the old patterns recur in garments made in the last hundred years. The author calls attention especially to resemblances between designs on dancer's kilts from paintings in a ceremonial cave of *c.* 1400 at Awatovi (pl. 4) and those on 19th cent. ' mantas ' (pls. 6, 7), terraced triangles and other favourite designs being present ; to these can be added many parallels from ancient textiles, basketry and sandals. Parallels in technique are also close. Examples of ancient textiles from caves in New Mexico and Arizona show brocaded weaves of the 14th cent. (pls. 1, 2) and embroidery in a darning stitch of the 12th cent. (pl. 3) while modern work also shows brocaded weaves and embroidery darned in a manner akin to brocading, worked strictly ' on the thread '.

But both design and technique show change. Dr Mera notes the ' use of the negative pattern idea ' in the design of the ancient brocade weave (pl. 2). This is more marked in the modern brocade weave and becomes dominant in the embroidery, where narrow lines and small spaces of white ground weave left in reserve not only divide and outline patterns but actually form them on a solid background. In technique there are changes both in the working of the brocade weave and the embroidery. The most remarkable is the use of the unique Pueblo embroidery stitch, which is not found in the ancient work ; the author thinks it must be a local invention. A drawing of the stitch (fig. 1) and a description are given on p. 8 but are not easy to understand ; it is a pity that one of Mr S. Stubbs' excellent photographs was not devoted to an enlargement of part of an embroidery to make all clear. Reference is made to a paper on the subject in the Denver Art Museum series but I have not been able to find it over here. Any reader who wishes to understand the technique can find good examples of modern work in the Pitt-Rivers Museum, Oxford. These include a dancer's sash, cotton, embroidered in coloured wool, and a dancer's kilt, cotton, embroidered in coloured wool with a fret border and cloud, mist and falling rain designs near to those of the kilts on pl. 11, both described in a fascinating book of notes by Mrs Aitken (Miss Freire Marreco). While studying these textiles and notes I was struck with the close relationship between the brocade weave and the embroidery. In both the aim seemed to be to cover the face of the material with colour, leaving only so much of the white ground as was essential to form the pattern. To avoid the disadvantage of long floats over large surfaces the weavers cleverly introduced rows of wrapped or ' soumak ' weave into the brocade weave. In similar situations the embroiderers used their special stitch. It is not possible to make this stitch easily intelligible without illustration but in essence it is like a ' soumak ' weave, wrapping over seven or more threads and under one, only the needle, as it comes up, goes through the 2-ply embroidery thread itself. It would be natural to regard the embroidery as derived from the brocade weave although the stitches seem usually to run along the warp instead of the weft, but in any case I hazard that the unique Pueblo embroidery stitch derives from the wrapped or ' soumak ' weave of the brocades.

Dr Mera tells us that among the Pueblos both embroidery and weaving have always been the prerogative of men ; the traditional garments have survived only for ceremonial use and the young men learn how to decorate them during rites held in the month of February. Mrs Aitken, probing further into this disability of her sex was told by a weaver of the Tewa corn clan at Hano that women were incapable of learning the patterns, they had no ' effective thought ' (pin'an). She explains that ' The work has to be done with scrupulous accuracy, counting the threads of the cloth . . . Planning and spacing

and counting of various designs involve a considerable exertion of memory and calculation ', but, nowadays, Dr Mera says, women are taught to embroider in the Indian schools ; one wonders if they are mere copyists, or help themselves out with squared paper, or whether, with education and opportunity, their minds have now become capable of ' effective thought '. GRACE M. CROWFOOT.

FURTHER EXCAVATIONS (1939) AT THE MUMBWA CAVES, NORTHERN RHODESIA. *By* J. Desmond Clark. Reprint from the *Transactions of the Royal Society of South Africa*, vol. XXIX, part 3, 133–201. 4 *plates*, 17 *figures*.

These caves are nearly a hundred miles WSW of Broken Hill, between the Lukanga Swamp on the north and the Kafue river on the south. They were discovered and excavated in 1925 by Mr Farquhar B. Macrea, and later in 1930 by an Italian Scientific Expedition. It was to clear up the mess left by this second excavation that Mr Clark on behalf of the Rhodes-Livingstone Institute, did the work here recorded. The Italians' results were published by Professor Dart and Signor del Grande, who claimed that an iron-smelting industry had been found intercalated between two Stone Age strata. But the alleged ' slag ' proved on analysis to be not slag at all but ' a cave deposit of sand and silt cemented by calcium phosphate and carbonate '; and the ' furnace ' seemed to be more like a grave. The work of the third (1939) expedition seems to have been done with exemplary care and thoroughness ; and the present report is an excellent presentation of the results. ' All actual excavation was done by the author with the help of a trained African assistant '. Three archaeological strata were found (1) a top layer of humus containing pottery and iron objects ; (2) a deposit containing implements typical of the Northern Rhodesian Wilton industry ; (3) a layer some 3 or 4 feet thick containing implements typical of the Rhodesian Stillbay industry. No evidence of ' Mousterian ' or ' Old Palaeolithic ' industries, claimed by the Italians, could be found. The pottery is well illustrated by drawings with sections, and we look forward to Mr Clark's promised article on ' the main pottery traditions of Northern Rhodesia '. Some scheme of pottery-classification, securely based on stratigraphy and associated finds, is an essential foundation for the archaeology of a new country ; and archaeology in Northern Rhodesia is not yet twenty years old. Future progress must, in the absence of imported and datable finds, depend mainly upon sequence-dating, ranging back perhaps from modern types to the latest Wilton phase. But these matters can safely be left in the capable hands of Rhodesian archaeologists. O.G.S.C.

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